the American Perfumer and ESSENTIAL OIL REVIEW

COSMETICS - SOAPS - FLAVORS

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Editorial Comment

Louisiana Rescinds Ruling Against Hormone Creams

Once again restrictions governing the sale and distributions of estrogenic cosmetics, imposed by local government, have been lifted. This took place when the State of Louisiana put into effect a new ruling on July 12, 1946, replacing the January regulation of the Board of Health, which had prohibited the manufacture and sale of hormone creams within the state.

The new regulation reads: "No cosmetic or beauty preparation containing as one of its ingredients estrogenic hormone, or any of its chemical derivatives, or any synthetic chemical product possessing properties similar to those of estrogenic hormone, may be manufactured, processed, packed, sold or distributed in Louisiana unless its label bears adequate directions for use and a statement of the quantity in units of such ingredients contained in each ounce of such product."

Thus, Louisiana's action falls in line with other instances where local regulations have prohibited the sale of hormone creams. In April, 1938, Kentucky prohibited the sale of these creams. The ban was lifted in January, 1940. New York, N. Y., followed suit in December, 1941, and the resumption of sale was permitted in February, 1942. Virginia was the last state to rule against the sale of such cosmetics before Louisiana when it excluded their sale in June, 1944. Sale was permitted there beginning in April, 1945.

The decision on the part of the Louisiana Board of Health to reverse its stand was based on hearings held April 12. Experts who appeared at the hearing represented Hirestra Laboratories, Elizabeth Arden, Helena Rubinstein, Inc., Bonne Bell, Inc., and Dorothy Gray, Ltd.

S. L. Mayham, executive vice-president of The Toilet Goods Association, Inc., commented upon the action as follows: "Thus once more has a body of qualified authorities charged with safeguarding public health after full and complete investigation lifted restrictions on estrogenic cream sales."

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Desiderata

by MAISON G. DENAVARRE

M. D. DeNavarre at work in his laboratory

LOW MAN ON TOTEM POLE

I must be the low man on the totem pole, for this month, a slew of squawks have piled up in my Desiderata folder. I call them as I see them, even though I know that all a fella gets for pioneering or trying to protect the rights of man, is an uppercut right on the end of the chin. Even so, I don't like to see big guys pick on little kids, or somebody else try to take things that don't belong to him.

O. P. A. AND PATENTS

Every honest lay and business man has to admit that there were *some things* about the O. P. A. that were alright. There were a lot of screwy things going on in O. P. A. such as letting you get a higher price for a shirt with short sleeves because it was a sport shirt, instead of letting you get a 10 per cent increase on your regular shirts. Anyway, the public got the idea that O. P. A. was like God watching over it so the ogre of a business man wouldn't gouge him on prices. Then O. P. A. died.

OOMS ANNOUNCED INCREASE

So, on July 8, 1946, Commissioner Ooms of the Patent Department blithely announced *via* a ½ page mimeographed form, that on and after July 5, 1946, the 10 cent copies of patents would be slightly increased —only 150 per cent—to 25 cents.

In his argument for this hike in prices, Commissioner Ooms claims it costs him 24 cents to print a copy of a patent and that at 10 cents the Department was losing money. Maybe so! (Anyway he ought to try another printer just to keep the first guy honest.)

But isn't that a familiar story? How many manufacturers found themselves in this difficult position . . . where goods, labor and everything else that goes to sell merchandise has gone way up in price. I know of one finished commodity where the cost of the ingredients alone is triple the cost in 1939. And this company still has not raised prices. What is good for the goose is good for the gander. Business men had a heck of a time to get a price increase of 5 or 10 per cent from O.P.A. But *they* weren't part of the government. If they were, they might have got a 150 per cent increase as did the Patent Department. (H. R. 6056, p. 71.)

It isn't the cost of the patents that makes your skin and temper burn, its the dern principle of the thing . . . it probably costs the Department 15¢ to return a 10¢ coupon telling you *'taint enough bud!* The trouble is, 99 per cent of the voters don't buy patents, so they will never know. At least the Michigan Senators and Congressmen know I don't like it.

A dime *isn't enough* for a copy of a patent. They are a shilling in England and a heck of a lot more in other countries including Canada, where you can't buy a copy, but have to get a copy typed from the original. (I've paid as high as $8.00 for a copy there.) But this is no time for Government to raise prices—or doesn't O P.A. have jurisdiction over the government.

CONGRATS LOUISIANA

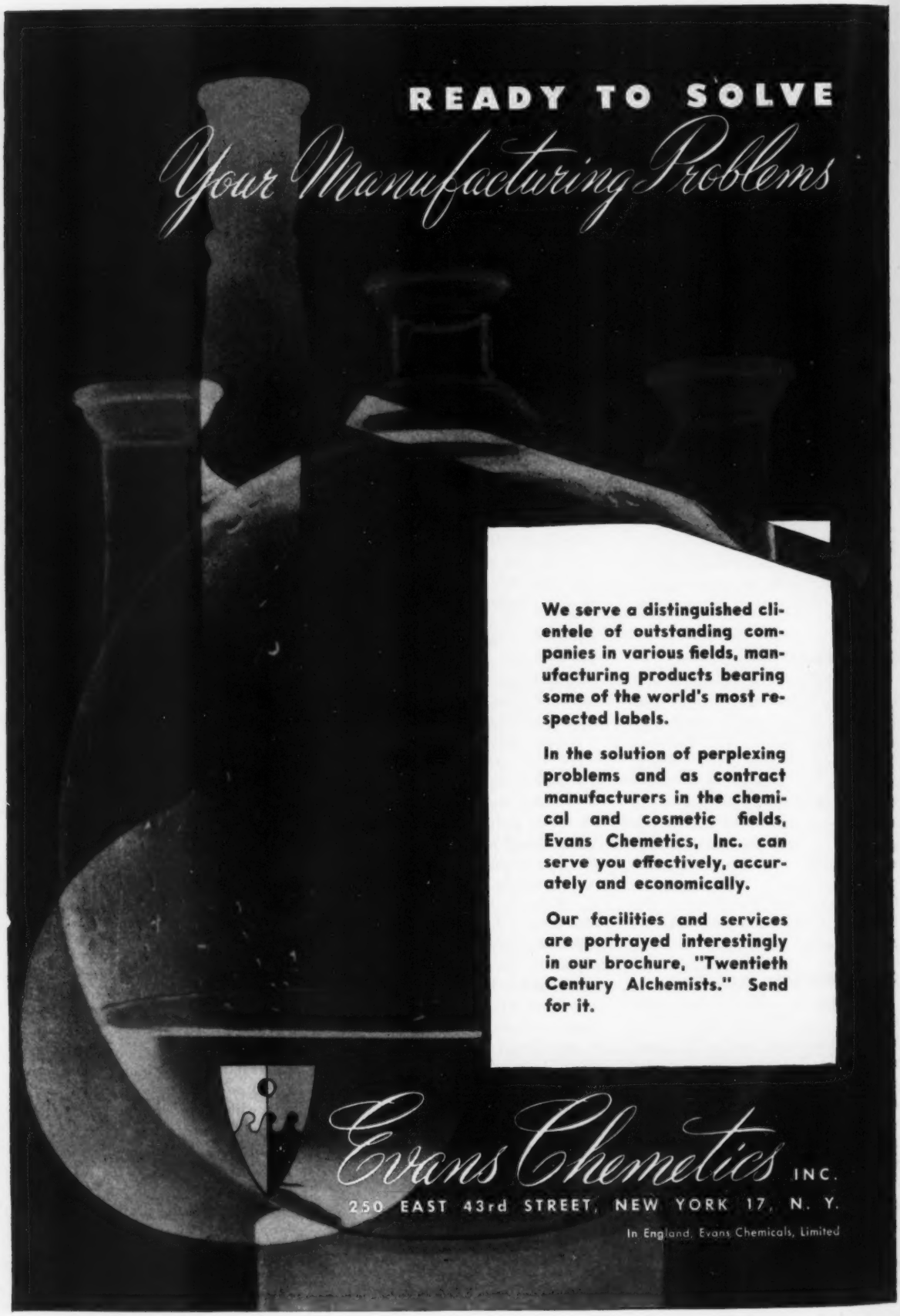
Last month, this column asked the question whether the State of Louisiana Board of Health was run by scientists—as it is supposed to be run—or whether it was run by politicians. Apparently, the scientists are in the saddle. And furthermore, it looks like they were BIG enough to repeal a highly biased and prejudiced order which forbade the sale of estrogen containing creams in Louisiana.

On Friday, July 12, the Louisiana State Board of Health repealed Section 15(a), 5.0800, as adopted on Jan. 11, 1946, and instead of the order prohibiting the sale of estrogen containing creams, it adopted the following regulation: "No cosmetic or beauty preparation containing as one of its ingredients, estrogenic hormone, any of its chemical derivatives, or any synthetic chemical product possessing properties similar to those of estrogenic hormone, may be manufactured, processed, packed, sold or distributed in Louisiana unless (a) its label bears adequate directions for use and (b) its label bears the number of international units per ounce of such ingredient."

Fair nuf! That is all the Federal Food, Drug and Cosmetic Act requires.

Anyway, Dr. David E. Brown and his associates are to be congratulated for righting the original order which could only have been written hastily and without forethought. Maybe Dr. Brown's Department of Health allowed *the* editorial in the *Journal of the American Medical Association* to influence it . . . without first having studied the editorial and noticing the use of such words as "*may*" and other words of similar exactness.

There is a way of preventing unfavorable opinion from manifesting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itself. Prevention is better than the cure. I wonder if the estrogen cream boys have seen the light of day yet. You can't *fight* unfavorable publicity. You must *prevent* it. And the only way to prevent it is to tell your true story *first*. Don't keep it hidden in your safe because you are afraid your competitor might profit a little too. For if your competitor goes down, so do you, Mister.

Now I'm ready for my week of vacation, having unburdened myself. Hope the swimming and fishing (maybe) are good in Northern Michigan.

QUESTIONS AND ANSWERS

606. CREAM DEODORANTS

Q: *I should like a formula for a cream deodorant, one that stops and deodorizes perspiration, with special attention to the base which should be non-greasy. What is the lowest pH that such a cream may safely have to be used with rayon (acetate).*

L. O. J.—RHODE ISLAND

A: We suggest that you try a formula similar to number 63 on page 263 of deNavarre's "CHEMISTRY AND MANUFACTURE OF COSMETICS." The name of the acid stabilized emulsifier is sent to you under separate cover. This formula consists of acid stabilized emulsifier, 15 parts; aluminum sulfate, 15 parts; spermaceti, 5 parts; glycerin, 3 parts; titanium dioxide, 3 parts; water and perfume to make 100 parts. The resulting cream would rot clothing. To protect clothing you would have to add what is known in the trade as a "buffer."

607. BUBBLE SOLUTION

Q: *Would you send us the formula for a bubble solution?*

H. H.—NEW MEXICO

A: Generally speaking, 15 to 20 per cent of a polyol, such as glycerin or propylene glycol, together with about 2 to 15 per cent of a foaming agent such as sodium dioctyl sulfosuccinate is mixed with enough hydroxy ethyl cellulose to give the desired viscosity.

608. CREAM SHAMPOO

Q: *We have noticed in your articles in* THE AMERICAN PERFUMER *that you have reported some work on a cream-type shampoo. Do you have any formulae for this type shampoo which would contain lanolin as one of the ingredients? Any other information you could send us would be greatly appreciated.*

B. L. J.—ILLINOIS

A: The best material with which to formulate a cream shampoo is a commercial paste of the sodium sulfated cocoanut fatty alcohols sold under a trade name which we send you under separate cover. You can add lanolin if you wish, but we caution you that it cuts lathering properties quickly even when used in small quantities. We further advise you that the material as used will form a translucent jelly at temperatures of about 80 deg. F. and must, therefore, be carefully compounded with other ingredients to prevent this manifestation.

609. AMMONIUM THIOGLYCOLLATES

Q: *We are wondering if you can assist us with a method of stabilizing our solutions of ammonium thioglycollate used for cold permanent waving. We find these tend to oxidize considerably in one to two months.*

W. M.—AUSTRALIA

A: If your solutions are pure and they are kept in tightly sealed containers you should have none of the difficulties you mention. Traces of iron or copper cause the thioglycollate to be quickly oxidized. Our suggestion is to buy the purest material, keep it away from metals of any kind and quickly transfer to small containers tightly sealed.

610. FREE FATTY ACID TEST

Q: *We will appreciate it if you would be good enough to let us have a practical analytical test for free fatty acid in shaving cream and also the methods generally used to adjust the free fatty acid content when the same is either more or less than the recommended 4 per cent.*

H. R. H.—BRAZIL.

A: If you will look at the back of THE AMERICAN PERFUMER for February, 1945, pages 110, 111 and 112, you will find a number of methods for determining the free fatty acid by several rapid methods. If you do not have this issue of THE AMERICAN PERFUMER, please let us know. In adjusting the free fatty acids content when the same is more than the amount desired, simply neutralize by an *equivalent* amount of some alkali such as triethanolamine, for example. In the event the fatty acid content is lower, use an *equivalent* amount of liquid fatty acid or boric acid.

611. LIQUID SOAPS

Q: *We will deeply appreciate any information you will give on the following:*

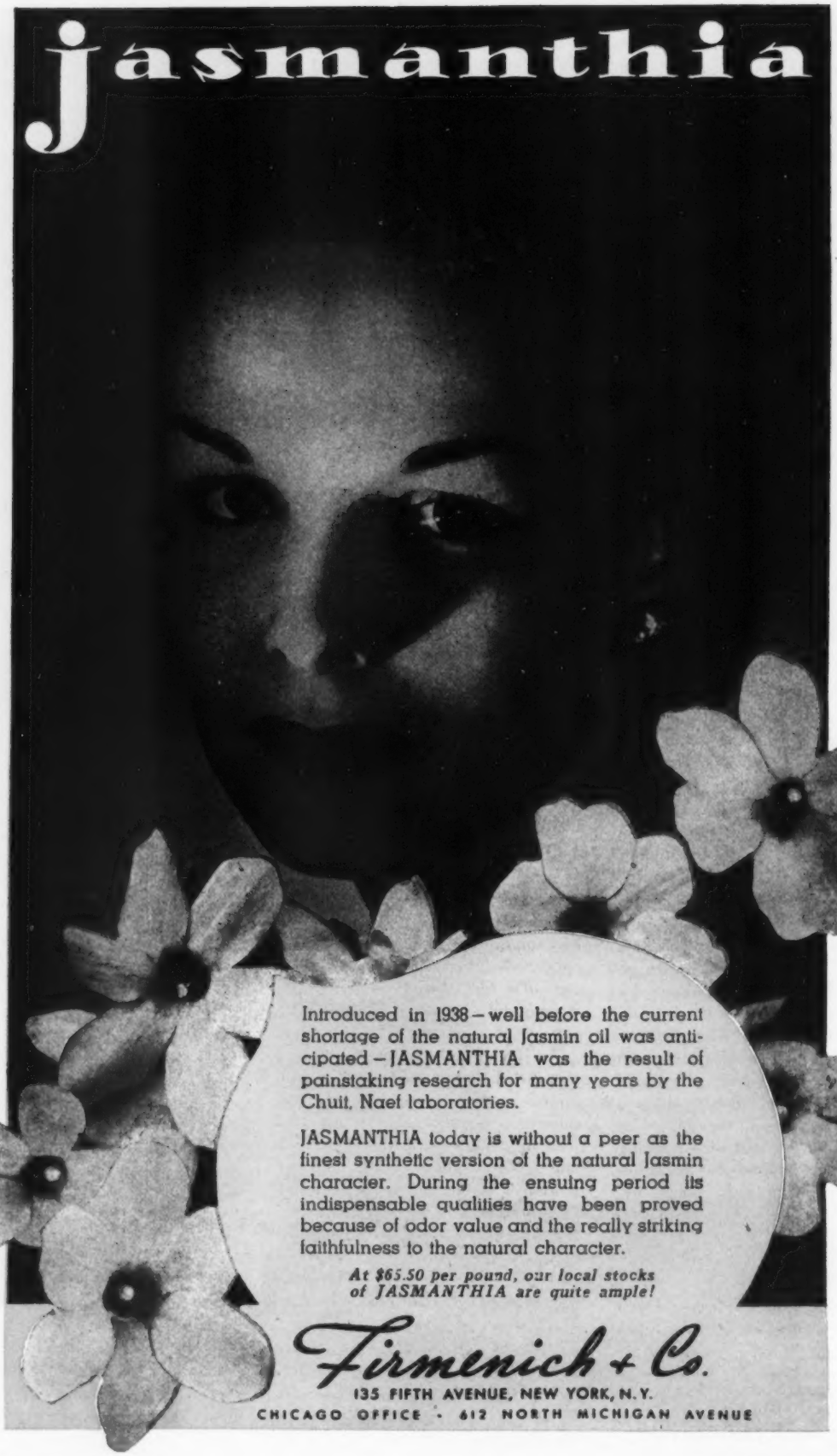
1. *Formula for various liquid soaps*
2. *Any pertinent data on the history of such soaps*
3. *What comprises basic formula for most liquid soaps?*
4. *What methods are used for perfuming liquid soap?*
5. *Is it necessary to keep soap at any specific temperature?*
6. *Are there common difficulties encountered in keeping various ingredients from separating? If so, how are ingredients kept mixed properly?*

Any references to other authoritative sources, including published literature, where we may obtain additional information will be gratefully received. Thanking you in anticipation of your kind attention to this matter, and trusting we may be able to reciprocate at some future date, we remain,

J. D. W.—ILLINOIS

A: We suggest that you buy a book on the subject of soap and cosmetic manufacture. On the first mentioned subject, we suggest you try "Modern Soap Making" by Thomssen and Kemp. On the second subject we suggest you get a set of "Perfumes, Cosmetics and Soaps" especially volume 3 by Poucher. Other good books are "The Chemistry and Manufacture of Cosmetics" by deNavarre and "Modern Cosmetics" by Chilson. Any of these books can be obtained from THE AMERICAN PERFUMER.

jasmanthia



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Taxes and Your 1946 Business Policies

Present day unstable business conditions make your tax man and his knowledge of refunds essential in governing your business policies

by J. K. LASSER

IN this wave of business unrest, strikes, shutdowns, curtailed consumer demand in some industries, unusual competitive conditions, your tax expert is essential to your business.

I need but one example to prove that. I sat in at the meeting of the board of a manufacturing company worried about a terrific increase of low price competition. All agreed there was no way to meet the threat but to cut prices, which would result in a loss of $650,000 for 1946.

But when I proved that to lose $650,000 would actually mean an out-of-pocket cost of only $39,500, there was no question about the job to be done. The board quickly approved promotion plans, new-dealer mechanisms and a general offensive to meet the competitive threat. In addition, it cut prices—the entire move giving us a budgeted loss of $650,000. AND THAT ACTUALLY WILL COST ONLY $39,500.

OPERATING LOSS CARRYBACK

Two technical points are involved.

If you have a business loss in 1946 you are entitled to use it to reduce income in the following years and in this order: 1944, 1945, 1947, 1948. Here is the way that works:

Assume you had the net income or net losses in the first two columns as shown in Chart A.

You pay no taxes (after you get the adjustment) for any of the years 1944-1949.

Congress has gone one step further. You'll remember that during war years all companies got credits against their excess profits taxes. The excess profits tax law was repealed in 1945. But for 1946 you still get the credit —*but only* to find out what carryback of credit you can use to reduce *prior* excess profits taxes.

Assume that you had a profit in 1946 and had an excess profits credit of $500,000. Then see Chart B.

In the above example, your corporation *would not be subject to excess profits taxes for the years 1942 to 1945, inclusive. It would get back the excess profits tax it paid in 1944-1945.*

The rules require a strict order for carrybacks and carryforwards. This affects both the net operating loss and unused excess profits credit carryovers. Always start back and then go forward. If in moving you have both an operating loss and an unused credit, you can apply both of them to the preceding year.

If the carryback or carryforward of a net operating loss produces an unused credit, that begins an entirely new cycle. You move that credit

CHART A

Year	Net Profit	Net Loss	Then You Apply the Losses to Reduce Profits of These Years 1944	1945	1948	1949
1944	$70					
1945	60					
1946		$90	$70	$20		
1947		80		40	$20	$5
1948	20					
1949	5					

CHART B

Year	Net Income In the Year	Excess of Income Over Credit Is	But Unused Credit for 1946 Is	This Unused Credit May Be Applied to Increase Other Credits By 1944	1945
1943	$150,000				
1944	550,000	$50,000			
1945	900,000	400,000			
1946	25,000		$475,000	$50,000	$400,000

backward for two years and then forward for two years but due to the repeal of the profits tax you may not go past 1945 with use of the unused credit.

COMBINATION OF CARRYBACKS

It is sometimes possible to have a combination of both the unused credit carryovers and net operating loss carryovers. Under the most ideal conditions this would have permitted the carryovers to be used four years backward. The following illustrates the method in which the long period of carryovers might occur.

Assume that a company has an excess profits credit of $10 and the incomes and losses for 1942-1946 as shown in Chart C.

CHART C

Year	Net Profit	Loss	Income is Reduced by the $40 loss in 1946 in this way	Resulting in Unused Credits of	You then carry over unused credits to increase these years by 1942	1943
1942	$11				$1	
1943	28					$18
1944	20		$20	$10		
1945	20		20	10		
1946		$40				

In the above example, the corporation would not be subject to excess profits taxes for the year 1942 through 1946. In each year the carryback, plus the $10 of credit already available, eliminates the excess profits tax. *It would now get back four years' taxes.*

The following parts of a piece I wrote for *Dun's Review* earlier this year bear repetition here:

REASON FOR CARRYBACKS

It is often said, erroneously, that taxes are imposed on one year's operations and restricted only to that income of that year. Recent tax law has done much to destroy the theory of annual income accounting. Actually, you often compute your taxes on your income over a long cycle of years. For example, our carrybacks and carryforwards of losses in operations are now allowed as a deduction over a cycle of five years. A continuance of the profits taxes with its carryover of unused credits might possibly have spread this cycle to a nine-year period.

SPREADING PERMITTED

The excess profits tax law fully realized this cyclical aspect of income. A corporation which received a "bunched-up" income in any year was allowed to transfer income to earlier or later years when it was really earned, if the income was "abnormal" for the year of receipt. In another part of the law, authors, artists, composers, inventors, engineers, and lawyers who presently get large sums for work done over a number of years are often permitted to spread the receipts over the years they worked. Wage and salary earners who receive back-pay in this year either because of the employer's bankruptcy, a court order, a finding of a governmental agency, or some similar unusual event may spread the wage over the years when it was earned. On the sale of gas or oil property where its value was caused by exploration or discovery of the seller the surtax may not be more than 30 per cent of the sales price of the property. These, and there are others, are examples of the definite tax trend that avoids putting stop signs at the beginning and end of a taxed year.

The law also supplies a way of spreading income earned in one year over another period. This is where the income came as a result of efforts in the earlier period. The tax law also looks beyond the barriers of the single year where there has been a recovery of an earlier deduction. The recovery may or may not be taxes to you depending on whether you had a tax benefit from the earlier deduction. The simplest example is a recovery of a bad debt that was deducted in a loss year. It may or may not be income in the year of recovery. If the reduction did not reduce your tax in the year of the deduction, it is not income in this year. The extent that it reduced your tax in the earlier year is the measure of the amount of tax you pay this year. For example:

Your net income in 1942 before the deduction for a bad debt was	$6,000
A deduction for a bad debt was taken in the sum of	10,000
This eliminated income in 1942 of	6,000
If you recovered the $10,000 in 1946 then you are taxed in 1946 only on	6,000

The principle involved here is termed the "tax benefit rule." You do not have income from a recovery of any type unless the deductions, when taken, gave you a tax benefit. Before 1945 this exemption applied only to bad debts, prior taxes, and tax delinquency amounts. The Treasury caught up with a mass of decisions by admitting that the rule applies to all recoveries of losses, expenditures and accruals originally deducted.

Court records give an idea of the tax saving possibilities in the rule. Here are some cases when the courts determined that there was no tax on recoveries because there had been no tax benefit by the deduction:

A company received rebates in one year on purchases in prior years.

Losses on stock in prior years were reduced by subsequent recoveries through compromises, suits, etc.

Adjustment was secured of loss in prior years claimed in the liquidation of a partnership.

Loss upon worthless stock, or after a stock sale offset by recovery through action against an officer, or director, and so on.

Accrued interest cancelled upon settlement of an obligation.

A tax benefit may result in a year other than that in which the deduction was taken, in cases where there was a net operating loss or a capital loss carryover.

All of the preceding point to a denial of the validity of single-year tax accounting. It is a fact that much of our determination of taxes is based upon occurrences over a long period of years.

The act adds materially to that long-range concept. It permits any unused excess profits credit for 1946 to be used to reduce taxes of prior years even though there is no excess profits tax in 1946. Thus we recapture prior year taxes (1945 and before) for at least the following:

1. The unused credit of 1946.
2. The net operating loss of 1946.

Thus, if your operations for 1946 show a loss, or if your income is less than your excess profits credit, you may get a refund of taxes previously paid.

Cold Permanent Wave Solutions as an Irritant

The authors discuss the experiments made in relation to possible undesirable qualities in cold permanent waving solutions, and as an attempt to answer some charges with careful experimental proof

by NORMAN O. CAPPEL, PH.D., and LEONA R. CAPPEL, PH.D.

The recent issue of the American Medical Association Journal referred to is Vol. 131, No. 7, 592, 1946, which contains an article by Cotter entitled "Thioglycollic Acid Poisoning In Cold Wave Process." Cotter selected five cases from a *larger* group of over 75 cases, the five reported being typical.

The number of cases reported in the following article is too small to draw any definite conclusions, but they are interesting particularly because they are only a part of a larger study now being conducted. The results of the complete study when published, will be most valuable.

This report is typical of many already in existence and in the hands of "cold wave" manufacturers. Their publication will help clear the clouds and establish the true facts; more such reports should be published. THE AMERICAN PERFUMER is anxious to give its readers all sides of controversial subjects. —*Editor.*

THERE has been much speculation and interest concerning the effects of cold permanent wave solutions as an irritant on the beauty parlor operator and the recipient of a cold permanent wave.

Available records indicate that there have been approximately 30,000,000 cold waves given in the last three years, and a remarkably low number of complaints of injuries, the figure arrived at being less than 0.1 per cent.

The instances cited ranged from very mild irritations to moderate irritations, except in rare cases of allergic reaction, or where possibly contaminated products were employed. Most symptoms were reported to have disappeared in a very short time.

The experiments noted below were made as a result of the article appearing in the June issue of the *Good Housekeeping Magazine*, in relation to possible undesirable qualities in cold permanent waving solutions, and as a preliminary attempt to answer some of the charges with careful experimental proof. More extensive experiments are being conducted in a deeper study of the possibility of systemic involvement cited from five cases published in a recent issue of the American Medical Association Journal. The interpretation of the symptoms appearing in these cases seemed inconclusive, and we must entertain the possibility that they were coincidental, appearing adjacent to the time each subject had received a cold permanent wave. This theory will be held until such time as we have available the results obtained by more extensive study now under way, being conducted by a prominent medical authority. We understand that an attempt is being made, with proper controls, to arrive at cause and effect as closely as possible as biological studies permit, considering all variables involved in such studies. We believe, in the meantime, that the article in the American Medical Association Journal should be considered seriously, pending the findings in the above mentioned experiments.

EXPERIMENT I

Purpose: To establish if a cold wave solution containing ammonium thioglycolate shows any injurious effect on the skin of experimental animals and humans when applied in a manner similar to that used in the cold permanent wave procedure.

Procedure: As a preliminary experiment rabbits were patch tested on the shaven skin. The tests were read after 60 minutes, a time comparable to that used in the cold wave permanent. Ammonium thioglycolate designated as "A" was obtained from a prominent manufacturer of this material. Solution "B" was sent to us anonymously and the manufacturer is unknown.

Chart I on the following page describes the experiment.

Finding no deleterious effects of patch testing for one hour on rabbits, humans were next patch tested. Chart II describes this experiment.

No effect was noted upon humans patch tested for 1 hour with solution "A," containing 7 per cent ammonium thioglycolate at a pH of 9.6.

It should be noted that individuals possessing a light complexion and natural blonde or red hair have always been more reactive to the ammonium thioglycolate solutions, and the processing time for a cold wave must be reduced for a curl corresponding to one given on brunette hair. A blonde or red haired individual would therefore be expected to give a positive skin patch test sooner than a brunette.

The usual solution employed in a

CHART I—SOLUTION "A"

Per cent of Thioglycolic Acid	pH	Time of Exposure	Results: Reddening	Results: Blistering
4	9.0	1 hour	none	none
4	9.2	1 hour	none	none
4	9.4	1 hour	none	none
4	9.6	1 hour	none	none
5	9.0	1 hour	none	none
5	9.2	1 hour	none	none
5	9.4	1 hour	none	none
5	9.6	1 hour	none	none
6.5	9.0	1 hour	none	none
6.5	9.2	1 hour	none	none
6.5	9.4	1 hour	none	none
6.5	9.6	1 hour	none	none
7	9.0	1 hour	none	none
7	9.2	1 hour	none	none
7	9.4	1 hour	none	none
7	9.6	1 hour	none	none

CHART II—SOLUTION "A"

Per cent of Thioglycolic Acid	pH	Time of Exposure	Hair Type	Results: Reddening	Results: Blistering
7	9.6	1 hour	blonde	none	none
7	9.6	1 hour	red head	none	none
7	9.6	1 hour	brunette	none	none

beauty salon appears to have a concentration of 6½ per cent. The safe pH as recommended by one manufacturer has been about 9.4.

EXPERIMENT II

Purpose: (a) To establish if a cold wave solution containing ammonium thioglycolate is injurious to experimental animals and humans under conditions far more drastic than ordinary circumstances of use. (b) To compare two cold wave solutions formulated from ammonium thioglycolate concentrate, from two different manufacturers, differing in content of dithiodiglycolic acid, which is considered an undesirable impurity.

Procedure: Patch tests were performed on rabbits and humans, the wetted cotton remaining in contact with the skin for 24 hours. The patch tests were conducted by using cotton saturated with the corresponding ammonium thioglycolate solution, covered by a large Bandaide and enclosed in a watch glass which was secured by tape and collodion.

Solution A was formulated from a 53 per cent concentration of ammonium thioglycolate which had a dithiodiglycolate content of less than 2 per cent.

Solution B was formulated from a 47 per cent concentration of ammonium thioglycolate which had a dithiodiglycolate content of over 13 per cent.

CHART III—RABBIT TESTS

Solution	Per cent of Thio. Acid	Per cent Dithiodiglycolic Acid	pH	Time of Exposure	Abrasions of skin	Results: Reddening of skin	Results: Blistering of skin
A	7	0.2	9.6	24 hours	none	none	none
B	6.5	1.4	9.4	24 hours	none	slight	slight
A	7	0.2	9.6	24 hours	2 parallel cuts	marked	none
B	6.5	1.4	9.4	24 hours	2 parallel cuts	very marked	slight

CHART IV—HUMAN TESTS

Solution	Per cent of Thio. Acid	Per cent Dithiodiglycolic Acid	pH	Time of Exposure	Hair Type	Results: Reddening of Skin	Results: Blistering of Skin
A	7	0.2	9.6	24 hours	blonde	none	none
A	7	0.2	9.6	24 hours	red head	none	none
A	7	0.2	9.6	24 hours	brunette	none	none
B	6.5	1.4	9.4	24 hours	blonde	none	none
B	6.5	1.4	9.4	24 hours	red head	none	none
B	6.5	1.4	9.4	24 hours	brunette	none	none

DISCUSSION

Under conditions far more drastic than those encountered in ordinary usage, two cold wave solutions containing ammonium thioglycolate were patch tested on the shaven skin of rabbits and on human skin for 24 hours. No effects were demonstrated by either solution after 24 hours' contact with the solutions on the three hair types of humans—blonde, redhead and brunette. Certain effects were demonstrated on experimental animals where it was possible to make the conditions more drastic. The shaven skin of rabbits showed a slight reddening after 24 hours contact with the solution B. Contact for the same time with solution A showed no effect. Those rabbits receiving two parallel razor cuts on the shaven skin before contact, developed more marked ef-

Cold wave solution patch test on the shaven skin of a rabbit

Cold wave solution patch test on human skin for 24 hours

fects. The skin of rabbits contacted with solution A for 24 hours, showed marked reddening and increase in the capillary supply to the area of the skin tested. Similar tests on rabbits with solution B showed more pathological changes consisting of very marked reddening, slight blistering and an edematous greenish appearance of the test area of the skin. A temperature rise was noted in animals treated with solution B, which contained 1.4 per cent of dithiodiglycolic acid, indicating toxic reaction. This might indicate a direct connection between higher dithiodiglycolic acid content of the material and toxicity symptoms.

Solution A had an ammonium thioglycolate content of 7 per cent, a pH of 9.6 and a low impurity content as demonstrated by less than 2 per cent dithiodiglycolic acid content of undiluted material, and no rise in temperatures was noted.

Solution B had an ammonium thioglycolate content of 6.5 per cent, a pH of 9.4 and a rather high impurity content as demonstrated by a 13 per cent plus dithiodiglycolic acid content in the undiluted material.

SUMMARY

It would appear from the experiments cited above that the cold wave solutions containing as high a percentage of ammonium thioglycolate as 7 per cent, with as high a pH as 9.6 can be applied safely to unbroken human skin for as long as 24 hours. The results showed that only slight reddening of the shaven skin of rabbits occurred after 24 hours contact with solution B, and no reddening appeared with solution A. The abraded skin of rabbits, however, after 24 hours contact showed marked reddening with both solutions and slight blistering and toxicity with solution B. It appears that there are some differences in reaction under drastic conditions which are undoubtedly related to an impurity in the product, namely dithiodiglycolic acid.

It seems that it would be indicated from the above experiments on animals that cold wave solutions should not be applied to abraded or sore scalps.

Survey of Recent Cosmetic Patents

by I. J. FELLNER, Ph.D.

Extraction process. Barron-Gray Packing Co., San Jose, Calif. *U. S. 2,382,407, August 14, 1945.* Sweetening ingredients are extracted from fruit by pressing the fruit in the form of a finely ground pulp having intimately admixed therewith a substantial quantity of fibrous material and recovering the sweetening ingredients pressed out.

Sterilizing method. White Laboratories, Inc., Newark, N. J. *U. S. 2,386,157, Oct. 2, 1945.* The unsterile material is sealed into a vapor-permeable container with a solution of an antiseptic in a volatile organic solvent, and the solvent is then diffused through the walls of the container.

Nail cleaning attachment. R. C. McRoberts, Tama, Iowa. *U. S. 2,390,381, Dec. 4, 1945.* The device is intended for dislodging scrappings from finger nails and comprises a length of metal fabricated to an acute angle. The material is semi-circular in cross section throughout its length, the curved surfaces of the angularly disposed portions of the metal being adjacent to one another and the flat surface of each portion being the outer surface of said angle, which surfaces are perpendicular to a plane containing both portions of said angle.

Sunray protective agent. P. Beiersdorf & Co., A.G., Hamburg, Germany. *Italian 396,688, June 4, 1941.* 2,4 and 3,4 dioxy-benzoic acid and its derivatives are used. Example: Equal parts of arachis oil and paraffin oil are mixed with 2 per cent of the isopropylic ester of the piperic acid.

Purifying waxes. Mamaroneck Chemical Co., Westchester County, N. Y. *U. S. 2,383,629, August 28, 1945.* Candelilla wax is emulsified and heated in the presence of a hydrogen-chlorine oxygen acid until the purification action is accomplished, whereupon the emulsion is broken and the wax is separated from the aqueous solution and impurities by setting.

Soap composition. Wilson & Co., Inc., Del. *U. S. 2,388,767, Nov. 13, 1945.* The composition contains an alkali metal coap of a tallow soap stock and small amounts of hydrogenated rosin and a purified salt-free alkali sulfonate with a mixture of hydrocarbons having a predominant portion of straight chain saturated aliphatic hydrocarbons of 12 to 14 carbon atoms in the molecules, the amount of sulfonate varying from about ½ to 1½ per cent by weight and the said rosin from about 1 to 5 per cent by weight.

Hair treatment. J. B. Calva, St. Paul, Minn. *U. S. 2,390,073, Dec. 4, 1945.* A process of establishing a desired configuration in growing hair comprises wetting the hair with an aqueous solution of 3 to 30 per cent of formaldehyde or formaldehyde yielding substances, and of 1½ to 30 per cent of an ionizable substance acting as catalyst. The pH of the solution is established in the range of 1 to 10. The hair is then heated to 100 to 200 deg. C. while maintaining it in the desired configuration.

Short Adages

by R. O'MATTICK

FROM his retreat in Vermont after a bit of a rest, some fishing and golfing, Dr. Rowmateral decided to set out on a trip northward to see what the eastern part of Canada looks like. Two days in the old city of Quebec convinced him that while the stone walls and ramparts are interesting, the narrow winding streets and the little French Canadian villages, weren't quite what he wanted to see.

With a few old cronies, who were eating the same food and drinking the same drinks at the Chateau Frontenac that are found in any large hostelry in New York or Chicago, he set out on a trip of the Gaspé Peninsula. It was early in the morning when the nose of their trusty Pontiac pointed northward. Lunch at the old hotel in Rivière de Loup and a night's rest in Cap Chat took them all away from the hum-drum of modern civilization. The landscape and the local color change gradually but before you know it you are in a region where only very few people speak a few words of English and the rest just shrug their shoulders and murmur OK to every question that is put to them except in the language their forefathers spoke in Normandy and Britanny.

After miles of dusty roads *avec beaucoup de* hills and curves thru the rough lumbering district they finally reached Cap Percé, one of the geological wonders of the world. High, rocky cliff, rising perpendicular from the Gulf of the St. Lawrence, lovely rolling fields of clover, white, yellow and green, and that famous rock pierced so that boats can go through it—make this place more wonderful than any guide book can describe. But so that no one who ventures there shall rue the day, remember the dusty roads and the treacherous route before making *vos préparations!*

* * *

Far from all the hustle and bustle of New York, Dr. Rowmateral forgot about shortages, about musk ambrette and the linings of caps and the leakages of perfume bottles and the cartons that were to be delivered back in April and telephone calls and confirmations. There was little use to put a phone call through to New York. When the wires are clear it takes about four hours and *en ce moment* monsieur, it may take six.

* * *

The good Doctor never thought that he could so far forget the industry to which he had devoted forty years of his life that he had no desire to call up his office or his laboratory to find out how things are going. He was fascinated by this strange region, this lovely scenery, and he was never more relaxed. But even had he wished to do so, he could not escape the perfume and cosmetic business. True, they were for the tourists, but in the little shops where the products of the native weaving and wood carving are sold, he found bottles of perfumes like those in the finest Fifth Avenue stores — five or six of them, but they were there. And hand-lotions and creams and after-shaving lotions and powders right at the very tip of Gaspé. But of the salmon for which Gaspé is famous there was none. It is all shipped to the States!

* * *

From Percé down the other side of the Peninsula and then through the Province of New Brunswick, Maine, New Hampshire, Vermont, New York and home. And now Dr. Rowmateral is back at his desk, back to shortages, musk ambrette, the newspapers and trade journals and quotations which he hasn't seen for weeks. The change did him much good and he is back to work full of vigor and as chipper as ever. Next year, he says, he is planning to go to Guatemala in Central America to see the other end of the North American Continent. That is how to really get away from it all. Why play golf and hang around a bar and see movies and do all the other things many people do on a trip when they can do these things right in New York.

* * *

We have been invited by the Doctor to go to Guatemala with him next year and we have accepted the invitation. We are definitely in agreement with him about his ideas of a trip and we shall make a report of the situation in Central America, covering all the plants and essential oils that are in vogue there and also about the jars of cosmetic creams we see and the lovely senoritas and everything else. Meanwhile we are brushing up on our Spanish.

* * *

Do you know, says he, that after you are half way up the Peninsula of Gaspé there are no longer any signs on the road in English. So that if you don't know that Petite Vitesse means low gear you might have quite an accident on those steep hills and get nearer to the Gulf of St. Laurent than you had planned. It is as if the Canadiennes didn't really care what happened to those who are ignorant of la belle langue française, and frankly I don't blame them.

"You'll not merchandise my cosmetics like that — I wont have my name dragged through any 5 & 10 cent stores!"

Cosmetic Trends in the Middle West

Buyers report a slow down in leg make-up sales . . . Price increases on perfumes and colognes meet with buyer resistance . . . Sales of powder cream compete with cake make-up

by JEAN MOWAT

HOLIDAY buying which will be done by Middle Western buyers during the next six weeks will indicate to manufacturers that war-time buying, regardless of price, has passed. Outstanding in the holiday purchases will be the fewer brands selected. This is due, not merely to inventory control, but to the fact that many brands, even with national names, were made up for the war-time trade and are not moving at present.

LEG MAKE-UP SALES SLOWING

A number of stores through this area are still featuring half a dozen or more brands of leg make-up and Block's of Indianapolis used a color page, showing three bronze tints, to stress the idea in both a novel and unique way. It did a good business. But a check through the territory shows that of the several brands shown, women have chosen only one or two that have proved successful. A comparison of sales for this summer with the past two indicate that sales are almost to a bottle the same as this time last year, and only a few bottles more than in 1944. Buyers generally express the opinion that this item is now approaching its peak-sale, and the present summer sales' report will determine orders for 1947.

HOLIDAY PERFUMES—COLOGNES

The many lines that increased prices on perfumes and colognes last month are finding more buyer resistance than was expected. The 10 to 15 per cent increase didn't seem to be of much concern to any buyer —business had been excellent—but the consumer has chosen brands which were not advanced. This is taken as another indication that the war-time gravy has been lapped up and the higher general living costs are taking too much from a dollar to enable the average woman or working girl to add a plus scented cost to her budget. In some quarters throughout the Middle West, buyers state that from the present low sales it would indicate there was a "buyer's strike." "Showers of Flowers" at Schuneman's, St. Paul, offered a price range of $1 to $4.50 with good returns for all floral scents.

In colognes there are several firms offering a deodorant in this form, for men and women, and it has been enjoying a reasonably good sale. Hudson's of Detroit has used a number of ads to present this cologne and to feature it in the department with satisfactory selling. Marshall Field & Co., Chicago, has been using it as leader and found it successful in the men's store, and since The Fair, Chicago, introduced it in the men's department it has moved better than in the section which is a part of the cosmetic department.

POWDER CREAM VS CAKE MAKE-UP

The growth and volume of sales that have been made in cake make-up has steadily increased but in some quarters, especially the stores catering to a class of women who keep a careful watch on complexions, there are reports that powder cream is moving into a highly competitive position.

Powder creams, or bases, as they are often called, with the right tint for the skin-tone, have been pushed by the house-to-house sellers and because time was taken to show exactly how it should be used, sales were increased. The clerks in the departments rarely had time for this, but they have stopped to explain its use, and to show the tint, with its resulting soft and new moist but fresh appearance on the woman's hand.

Makers of cake make-up are too strongly entrenched with the teenagers to see much difference in the anticipated change-over made by the older women.

No advertising of glamour could beat that last idea and so the sales are mounting. From the reports of leading buyers who have watched this slow switch-over during the past six months the business today is considered very much worth-while cultivating. As the powder cream can also be used for a base instead of the liquid make-up, buyers are watching their stock on the latter and studying the effect during the coming months.

Cake make-up is still being featured by the leading stores of the Middle West and is often combined with the sun tan shades in powders to produce an added sale. This is true in Milwaukee as the Boston Store has been very successful in such presentations, as has Hudson's of Detroit. The stores in both Kansas City and Des Moines report that cake will continue a steady seller, for regardless of how high the mercury goes, a woman can still retain her freshness and look smart.

"YOUTH" MEANS A SALE

Any cosmetic that is featured to indicate it adds "youth" to the com-

plexion, or has certain elements in it to feed the skin and keep it firm, has a sure sale. The past month national advertising has stressed this motif and many local stores in cities in the wheat-belt have given it accent. During the lush spending days of 1944-45, women came in and bought one jar convinced it would do the work that normally should have been done 10 years earlier. Today, while these creams are being sold it is not a matter of one jar but it is the complete treatment lines. While the summer promotions have been given to cooling lotions — colognes, toilet-water, bath salts and oils—the sales on the better end of the treatment lines have slowly increased. Buyers express the thought that pre-war customers are again in the market for the best.

Whether or not the many fancy soap sales are in the youth classification no buyer dares to state, but they do say that not in many months have the finer super-fatted soaps been in such demand. Almost as a natural, the sale of complexion brushes has moved upward. Whether the average physician has grown tired of what he calls "uncleansed and unscrubbed" skins and ordered soap and water treatment cannot now be definitely stated. But women come into the finest stores in this section and making their purchases of soap and brush comment that their physician has ordered a "soap-bath" for their face and neck, supplemented with an excellent treatment cream.

PREDICTIONS BY BUYERS

The back-to-school kits of good skin cleansers will show better sales. Most of them also have excellent lotions for the hands, powder cream, cake or good powder as well as rouges.

Holiday kits must be better made ones which will stand up and hold together after 10,000 mile trips.

Ensemble sales will be stressed in all promotions this Fall.

Youth cosmetics in girl's departments in many stores are considered important to train these girls that skin means constant care.

Deodorants of all types, probably as many sales on paste as on cream liquid, will continue to increase for now it is considered almost a *must* in every business.

A new oil that gives the nails both strength and new beauty for the polish is to be an important Fall item.

Curling fluids and the various allied types will continue to sell for home shampooing.

The many types of cream shampoos are being eliminated by the public so that a few well tested ones are good sellers.

Although sun tan lotions have been good sellers, the late hot weather and the many vacationists in September will use added quantities, and then begins the trek to southern resorts. Lotions are now on counters almost year round.

Today pure red lipstick is demanded, but already women donning all black outfits are asking for a new shade and the wine-tones will dominate for Fall. Polish tones will follow this same trend buyers predict.

Cleansing creams will be more important in Fall sale, in higher priced lines, than in some years. Combined sales of treatment creams can easily be built.

Buyers studying the new selling methods in leading drug store chains are giving special instruction to their own clerks. As there is much new help behind the counters, with so many stores operating on a five-day basis but keeping open six, it means added work in sales training and knowledge of lines, plus the skin requirements of a customer.

The Fall displays will show less merchandise on the counter. The exhibits will be carefully chosen to present the finer lines. Tables will offer broken lines or specials.

Something must be done to stop the heavy pilferage which goes on in every department. Men and even women walking past a counter too often slip display goods in their pockets. Buyers point out that fewer items, well displayed, would reduce losses. Davison-Paxon, Atlanta, keep all the displays under glass boxes and the pilferage loss—through this change —was astounding.

Every buyer looks for a good holiday sale. Packages must be smart in arrangement, well priced, and offer new ideas. The many lines that have changed over from 1941 packaging to the present 1946 theme have the edge report buyers.

That prices are being watched by women is apparent in the number of "refusal-sales" made on marked-up perfume and cologne items. All cosmetic lines are shopped as carefully.

Cosmetics Production

The War Production Board has released the findings of a survey which it conducted in 1942 to determine the sales of toilet goods companies in 1941. Over 1,000 firms reported, and it is estimated that 80 per cent of the domestic production of lipstick and not less than 85 per cent of the domestic production of other products is represented as follows:

Cleansing, lbs.	13,414,000
Dentifrices, total, lbs.	36,698,000
Paste, lbs.	25,678,000
Powder, lbs.	9,983,000
Liquid, lbs.	1,037,000
Lipstick, lbs.	469,000
Lotion, hands, gals.	2,123,000
Oil, bath, gals.	44,000
Perfume, liquid, gals.	78,000
Powder, baby, lbs.	4,808,000
Powder, face, lbs.	9,829,000
Powder, toilet, lbs.	22,134,000
Rouge, total lbs.	274,000
Cake, lbs.	250,000
Cream, lbs.	24,000
Shampoo, liquid, total, gals.	5,324,000
Soapless, gals.	2,308,000
Soap, total, gals.	3,016,000
No cocoanut oil, alcohol, or glycerin, gals.	1,460,000
With cocoanut oil, alcohol, or glycerin added, gals.	1,018,000
Ingredients not specified, gals.	538,000
Shaving cream, total lbs.	16,818,000
Lathering, lbs.	9,900,000
Brushless, lbs.	6,918,000
Shaving soap (cake, powder, and liquid), lbs.	6,607,000

Perfumed Fly Swatter

Glamor has invaded the fly-swatter field with the presentation of an all-plastic swatter which perfumes the air as it kills the flies.

The swatter pad is molded of Geon plastic raw material, produced by B. F. Goodrich Chemical Co. in translucent red. Handles, in eight colors, are of cellulose acetate. The Odor-Swat Co. merchandises the product and the Plastic Engineering Co. are the molders and assemblers.

Small vents at the top of the handle allow the air to be perfumed as the fly killer is wielded. The wick can be reimpregnated with the user's favorite scent.

Other outstanding characteristics of the new swatter, as claimed by the manufacturer, are its durability—it is unconditionally guaranteed, it will not scratch furniture or mark wall paper and can be cleaned repeatedly with soap and water.

Popular demand for this King of Swats created an initial order of 300,000.—*The Chemurgic Digest.*

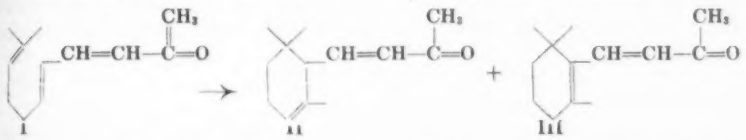
Pseudoionone Cyclization by Acidic Reagents

*A study of the cyclization of pseudoionone by acidic reagents to yield mixtures of alpha and beta ionones . . . The mechanism of the reaction is discussed and suitable preparative procedures are recommended**

by E. EARL ROYALS

Georgia School of Technology, Atlanta, Ga.

PSEUDOIONONE (I) under the influence of acidic reagents is converted into a mixture of α-ionone (II) and β-ionone (III), the artificial violet odor of commerce.[3, 10, 11] Because of the great technical importance of the ionones, a number of methods have been developed for the cyclization of pseudoionone and are described in the patent literature.[4, 6, 7]



Although the relative proportions of α- and β-ionones obtained on cyclization of pseudoionone are dependent on the cyclizing agent used, little attention has been given to this phase of the problem beyond the general statements that concentrated sulfuric acid gives mainly β-ionone,[9] whereas phosphoric, formic,[9] acetic, and benzoic acids[8] produce mainly the alpha isomer. Hibbert and Cannon developed laboratory procedures for the preparation of an ionone said to be essentially the alpha isomer.[4] Ito studied in some detail the cyclization of pseudoionone by sulfuric and phosphoric acids, and showed that the proportion of isomeric ionones obtained is dependent on the concentration of the cyclizing acid.[5] The present investigation was made for the effect of the cyclizing agent on the relative proportions of α- and β-ionones obtained on cyclizing pseudoionone, to throw light on the mechanism of the cyclization reaction, and to develop practical methods for the production of α- and β-ionones.

CYCLIZATION PROCEDURES

Citral was obtained from Fritzsche Brothers, Inc., and was used without further purification. The acetone and various acidic reagents were of C.P. grade. Phosphoric acid of strength greater than 85 per cent was prepared by adding the calculated quantity of phosphorus pentoxide to the ordinary sirupy acid. Pseudoionone was prepared according to the following procedure:[11] A mixture of 200 grams (1.31 moles) of citral, 200 grams (3.44 moles) of acetone, and 200 cc. of a saturated solution of barium hydroxide was vigorously stirred for 3-4 days at room temperature (about 28 deg. C.). The organic material was taken up in ether and washed successively with water, 5 per cent tartaric acid solution, and again with water. The ether solution was dried over sodium sulfate, the ether was removed by distillation, and the residue was distilled under reduced pressure. The fraction boiling around 150-165 deg. C. (15 mm.) was collected. This material was freed of citral and condensation products of acetone by steam distilling until about one liter of distillate was collected. The residue was dried over anhydrous sodium sulfate and fractionated under reduced pressure through an 8-inch column packed with glass helices and externally heated. The portion boiling at 144-149 deg. C. (10-11 mm.) and showing n_D^{20} of 1.5230-1.5280 (successive fractions) was taken for use as pseudoionone. The literature reports for pseudoionone prepared by this method,[11] 143-145 deg. C. (12 mm.) and 1.5275, respectively.

The cyclizations of pseudoionone (Table I) were carried out in the following general manner: The cyclizing agent was placed in a 200-cc. three-necked flask fitted with a mechanical stirrer, a dropping funnel, and a thermometer reaching into the reaction mixture. The flask was cooled in an ice bath, and the cyclizing agent was vigorously stirred while 20 grams of pseudoionone were added dropwise during 15-30 minutes; the rate of addition was adjusted so that the temperature of the reaction mixture did not exceed 10-15 deg. C. When the pseudoionone had all been added, the cooling bath was removed, and stirring was continued for a period considered sufficient to permit complete reaction. The reaction mixture was poured into 500 cc. of ice water and extracted with ether. The ether solution was thoroughly washed with water and dried over anhydrous sodium sulfate, and the ether was removed by distillation. The residue was subjected to steam distillation for 5-6 hours; the ionone passed over in the distillate, and resinification products were left behind. The aqueous distillate was extracted with ether, the extract was dried over anhydrous sodium sulfate, and the ether was removed by distillation. The residue was distilled under reduced pressure from a small Claisen flask. Details

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of the vacuum distillations are recorded in Table I. In no case did more than 1-2 grams of residue and holdup remain from the final distillation; low yields were always accounted for on the basis of polymerized material nonvolatile with steam.

This general procedure was followed in all cases except those involving cyclization with aluminum chloride and with the solid acids, chloroacetic and trichloroacetic. The former were carried out by adding the required quantity of C.P. aluminum chloride (small pellets) in small portions during 30 minutes to a stirred solution of pseudoionone in a suitable solvent (petroleum ether or carbon disulfide). In cyclizations with the solid acids, the reaction vessel was heated in a water bath to about 55 deg. C. to maintain the cyclizing agent in the molten state during the addition of the pseudoionone and the subsequent stirring period.

The compositions of the ionone mixtures obtained were estimated from the refractive index at 20 deg. C. on the assumption of a linear relation between composition and index. The following values were taken for use in the calculation: α-ionone, $n_D^{20} = 1.4980$; β-ionone, $n_D^{17} = 1.521$.[1] The compositions given in Table I were calculated by this method and were not checked by any gravimetric procedure.

Table I shows the experimental results obtained in this research. Consideration of experiments 1, 4, 7, and 9 demonstrates a definite relation between the strength of the cyclizing acid, as measured by its dissociation constant in water, and the composition of the ionone mixture obtained on cyclization of pseudoionone. The pertinent data are summarized in Table II. The proportion of β-ionone in the cyclized product increases with the strength of the cyclizing acid. Indeed, the data may be fitted to the relation, (1)

per cent β-ionone $= 15 \log K_a + 87.7$

with a fair degree of accuracy. The maximum deviation from this relation occurs with trichloroacetic acid; the observed proportion of β-ionone is 11 per cent lower than the calculated value. In the final distillation of the ionone mixture obtained by cyclization with trichloroacetic acid, a small forerun of an unidentified material of lower refractive index than the ionones was obtained. Contamination of the ionone fraction with small amounts of this material would have led to a low value for the fraction of β-ionone in this mixture. In no other case was a forerun obtained in the final distillation of the ionone mixtures.

TABLE II
CYCLIZATION OF PSEUDOIONONE BY CONCENTRATED ACIDS

Cyclizing Acid	$-\text{Log}\,K_a$	β-Ionone in Cyclized Product, per cent Obsvd.	Calcd.
Sulfuric (concd.)	0.40	87	81.7
Trichloroacetic (molten)	0.70	66	77.2
Phosphoric (100 per cent)	1.96	61	58.3
Formic (88 per cent)	3.67	36	32.6

Bronsted[2] showed that for an acid-catalyzed reaction in a given solvent, the following relation should exist

$$\log k = A \log K_a + B \quad (2)$$

where k = catalytic rate constant
K_a = acid dissociation constant of catalyst
A, B = constants

Equation 1 follows directly from this relation on the assumption that the

TABLE I
CYCLIZATION OF PSEUDOIONONE BY ACIDIC REAGENTS

Expt. No.	Reagent	Time[a], Min.	Temp.[a], Deg. C.	B.P. of Product Deg. C.	Mm.	n_D^{20}	β-Ionone[b]	Yield, per cent.
1	60 g. concd. sulfuric acid	5	25	127–34	10–9	1.5180	87	34.0
2	100 g. 75 per cent sulfuric acid	25	25	129–35	11–9	1.5160	79	66.5
3	100 g. 60 per cent sulfuric acid	60	20	125–38	10	1.4990	5	29.0
4	100 g. 100 per cent phosphoric acid	10	20	117–31	11–9	1.5119	61	40.5
5	100 g. 94 per cent phosphoric acid	25	25	118–25	7–6	1.5038	26	70.5
6	150 g. 85 per cent phosphoric acid	25	30	117–22	6	1.5032	23	60.0
7	80 g. molten trichloroacetic acid	30[c]	40–50[c]	121–38	9–8	1.5130	66	38.0
8	100 g. chloroacetic acid	60[c]	50–60[c]	137–50	11–9[d]	1.5195[d]	..	58.5[d]
9	100 cc. formic acid	120	100	107–17	5–4	1.5060	..	40.0
10	50 g. anhydrous $ZnCl_2$ in 100 cc. glacial acetic acid	120	34	123–38	10–9	1.4995	7	61.5
11	13.5 g. $AlCl_3$ in 75 cc. petroleum ether[e]	30	30	144–48	11–8[d]	1.5250[d]	..	67.0[d]
12	20 g. $AlCl_3$ in 100 cc. carbon disulfide[e]	300	25	Extensive polymerization				
13	13.5 g. $AlCl_3$ in 75 cc. carbon disulfide[e]	60	28	122–40	9–8	1.5084	46	26.0[f]
14	50 g. concd. sulfuric acid, 50 g. 85 per cent phosphoric acid	15	25	129–38	12–11	1.5170	83	66.0
15	20 g. concd. sulfuric acid, 80 g. 85 per cent phosphoric acid	20	25	121– 7	8–7	1.5072	41	71.0
16	50 g. 20 per cent oleum, 50 g. 85 per cent phosphoric acid	10	25	125–34	11–9	1.5175	85	63.5
17	70 g. concd. sulfuric acid, 30 g. glacial acetic acid	20	25	118–21	6–5	1.5184	90	71.5
18	60 g. concd. sulfuric acid, 40 g. glacial acetic acid	30	28	133–40	12	1.5155	77	65.0
19	50 g. concd. sulfuric acid, 50 g. glacial acetic acid	30	25	124–35	10	1.5121	62	68.5
20	35 g. concd. sulfuric acid, 65 g. glacial acetic acid	45	30	113–30	8–7	1.5014	15	55.0
21	20 g. concd. sulfuric acid, 80 g. glacial acetic acid	60	30	120–35	13–11	1.4960	0	42.0

[a] Pseudoionone, 20 grams, was added dropwise to the vigorously stirred cyclizing agent at 5–15 deg. C. during 15–30 minutes. The mixture was then stirred for the time and at the temperature indicated.
[b] Calculated from refractive index.
[c] Pseudoionone was added to the reagent during 15 minutes at about 55 deg. C.
[d] Recovered pseudoionone.
[e] Aluminum chloride was added in small portions during 30 minutes to a cooled solution of pseudoionone in the indicated solvent.
[f] 16 per cent pseudoionone was recovered: b.p., 144–50 deg. C. at 9 mm.; n_D^{20} 1.5226.

percentage β-ionone in the cyclized product is proportional to the catalytic rate constant for its formation. Equation 1 holds only when applied to the cyclization of pseudoionone by very concentrated acids. With more dilute acids as cyclizing agents the relation breaks down, an indication that another complicating factor is here concerned.

The use of the acid salts, zinc and aluminum chlorides, as cyclizing agents produced mixtures rich in α-ionone; aluminum chloride gave relatively more of the beta isomer. This is in accord with generally accepted ideas of the relative acidity of these two salts, the more acid (electrophilic) aluminum chloride yielding a higher percentage of β-ionone. Zinc chloride in glacial acetic acid gave an excellent yield of α-ionone almost free of the beta isomer. Generally poor results were obtained with aluminum choride, which proved to be a powerful catalyst for the polymerization of pseudoionone.

Dilution had a marked effect on the relative proportion of α- and β-ionones obtained on cyclizing pseudoionone with a given acidic reagent. Although it is usually stated in the literature[9] that phosphoric acid gives mainly the alpha isomer, experiments 4, 5, and 6 show that the proportion of isomers actually obtained is dependent on the concentration of the acid in accordance with the observations of Ito.[5] Thus, whereas 100 per cent phosphoric acid gives an ionone containing 61 per cent of the beta isomer, the use of 85 per cent phosphoric acid reduces this figure to 23 per cent. A similar situation exists with sulfuric acid as cyclizing agent, although a relatively greater dilution is necessary to change the proportion of isomers from principally β- to α-ionone. Concentrated sulfuric acid cyclizes pseudoionone to an ionone which contains about 87 per cent of the beta isomer. The effect of diluting sulfuric acid with 85 per cent phosphoric acid, glacial acetic acid, or water is shown in Figure 1. The curve for dilution with 85 per cent phosphoric acid demonstrates the relatively greater cyclizing activity of sulfuric acid over phosphoric. As the mole percentage of sulfuric acid increases, the proportion of β-ionone increases sharply until at 35 mole per cent sulfuric acid the ionone produced contains 83 per cent of the beta isomer. Water and acetic acid, on the other hand, have little or no cyclizing activity as compared to sulfuric acid, and so act merely as diluents for this reagent. As concentrated sulfuric acid is progressively diluted with water, little change occurs at first in the proportion of ionones; at about 30-40 mole per cent sulfuric acid, however, the curve breaks sharply downward, and thereafter the ionone produced is almost entirely of the alpha structure. A similar situation exists when sulfuric acid is diluted with glacial acetic acid, except that the break in the dilution curve comes at a somewhat higher concentration of sulfuric acid (about 60 mole per cent), and the change in cyclizing activity is somewhat more gradual than with water-sulfuric acid mixtures.

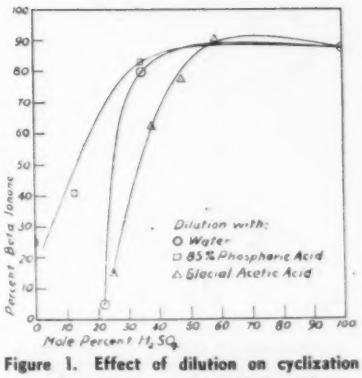
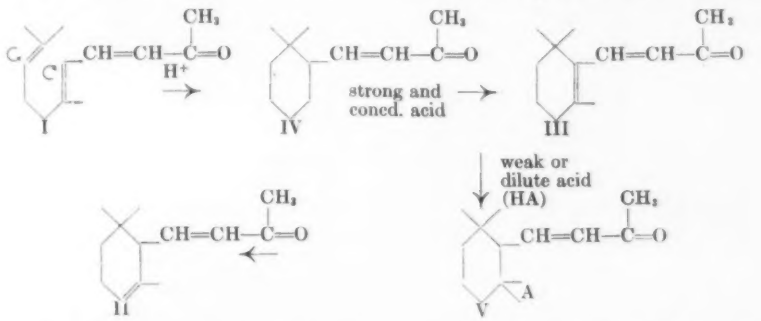


Figure 1. Effect of dilution on cyclization of pseudoionone with sulfuric acid



The preceding relations existing between the composition of the ionone mixtures obtained on cyclizing pseudoionone with acid reagents, the acid strength, and the dilution of the cyclizing acid suggest the following mechanism for the reaction. Under the influence of an acidic reagent, pseudoionone is converted into the carbonium ion structure (IV). Undoubtedly the conjugated system, including the carbonyl group of I, exerts its anionic activity in strongly acid solutions; but since the cyclization is dependent on the development of an anionic center at the α-carbon of this system, only the latter polarization is shown in the diagram. In concentrated solutions of strong acids, the reaction is completed by eliminating a proton from the labile carbonium ion in such a manner that the ring double bond of the resulting ionone is in conjugation with the side chain—that is, to produce β-ionone (III). In weakly acidic media or in dilute solutions of any acid, however, the carbonium ion (IV) is rapidly removed from the field of action by combination with an anion to give structure V. This intermediate, in contrast to the labile carbonium ion, is relatively nonreactive and can yield ionone only by a subsequent reaction step involving the elimination of a molecule of the acid (HA) and requiring a definite activation energy. This particular ionone produced from intermediate V then becomes a matter of relative reaction rates rather than thermodynamic stability of the resulting ionone. Presumably α-ionone is formed from this intermediate more rapidly than β-ionone. Procedures 6 and 10 (Table I) are recommended for the preparation of α-ionone relatively free of the beta isomer; experiments 2, 16, and 17 for β-ionone.

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Packaging Portfolio

RENEE THORNTON

RENEE THORNTON: Renee Thornton presents a handsome metal case for its lipstick. The case is finished in ebony black and the Renee Thornton crest is embossed in gold.

HELENA RUBINSTEIN: Helena Rubinstein's "Poucho" Kit contains plus cleanser cream, which lathers like soap, a scented deodorant, cake make-up, and a lipstick. The kit comes in black simulated alligator base with gay red top, or brown with emerald top.

HELENA RUBINSTEIN

FAREL DESTIN: Odoleur, a cologne and deodorant rolled into one, is now presented by Farel Destin. The packages are attractive with each of the seven scents presented in a different color scheme. The sleek bottles are capped in pink plastic and their colorful labels duplicate the design of the cartons.

FAREL DESTIN

HERB FARM SHOP: This lovely pink satin "Floraball" sachet comes in the Herb Farm Shop's Royal Purple fragrance. Pink satin streamers hang from the fan-shaped acetate container which permits the sachet to retain its fragrance.

HERB FARM SHOP

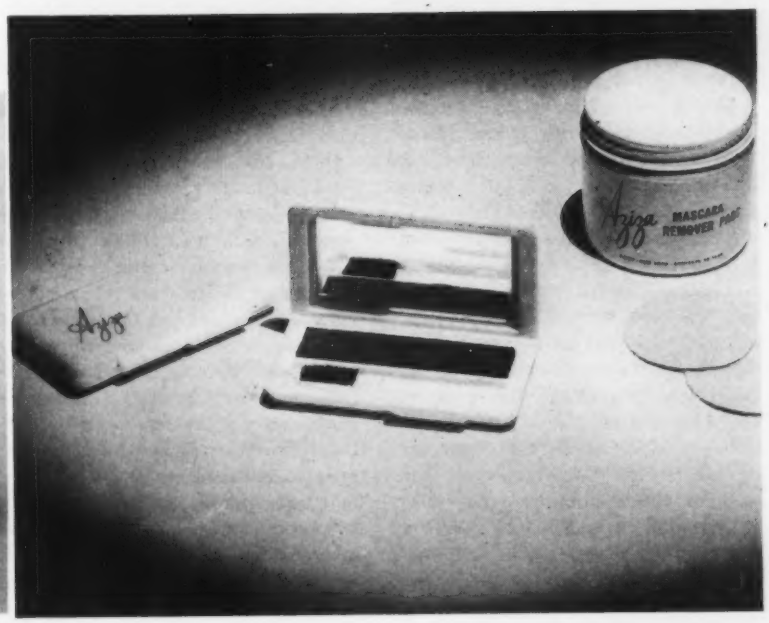
PRINCE MATCHABELLI: A pink, ruby-spangled box introduces Prince Matchabelli's Prince's Ruby. The lipstick is in a golden coronet case. There's a matching rouge in the plastic hinge case and a box of harmonizing face powder.

PRINCE MATCHABELLI

SHULTON: The new bath salt sticks are presented in an attractive wall-box by Shulton. Each box contains eight bath sticks. Red, green and yellow flowers plus a blue curlicue brighten the cylinders and the box.

AZIZA: Aziza has restyled its packaging and created a mascara compact. It is made of a cream colored plastic and has a mirror exactly the right size for making up the eyes. Fifty mascara remover pads come in a distinctive white and green Aziza jar.

AZIZA



SHULTON

Technical Abstracts from Scientific Literature

These brief abstracts listed provide a convenient key to current scientific literature of the world on perfumes, cosmetics, soaps, dentifrices and other preparations

Control of rancidity. T. P. Hilditch. *Chem. & Ind., Feb.*, **19**, *67-71, 1944.* Antioxidants which accompany natural fats in seeds may be of several different types. Many, however, have one feature in common, namely, the presence of one or more polyhydroxyphenyl residues or ring-systems forming part of a more complex molecular structure. None of these antioxidant extracts when isolated, appear to exhibit antioxygenic activity comparable with the efficiency displayed within the seed itself. In a study of known antioxidants, it has been found that the presence of a carboxylic group in a phenolic molecule reduces antioxidant activity. The synergistic effort of certain acids such as citric acid on the antioxidant power of polyhydroxyphenols has been confirmed. (Through *Soap* **20**, *No. 4, 69, 1944.*)

Nonfoaming shampoo. *U. S. 2,336,166.* Use is made of a sulfated mixture of a paraffm oil and rice-bran oil.

Skin permeability. H. A. Abramson and M. H. Gorin. *Cold Spring Harbor Symposia Quant. Biol.*, **8**, *272-9/—.* The skin is described as a complicated system in which there are at least three main channels of transport. These are (1) the ducts and coils of the sweat glands, (2) the hair follicles and sebaceous glands, and (3) the skin itself, the keratin matrix which links structures 1 and 2. Contact of the skin with the innumerable chemical substances used in industry has shown that the number of substances which penetrate the skin are almost unlimited. Exposure to certain chemicals for varying lengths of time may result in dermatoses which are fairly specific in nature. Only a small quantity of the specific substance responsible for the dermatosis need penetrate the skin to produce the dermatological lesions. Among the principal specific skin irritants named are antioxidants, insecticides, resins, soaps and oils. (Through *Soap*, **20**, *No. 4, 69-70, 1944.*)

Use of ion exchangers. F. J. Myers, *Refrigerating Eng.*, **47**, *287, 1944.* After reviewing the development of ion exchange apparatus and the reactions involved, the author points out certain possible fields of application of interest to the food industry. These are based on the ability of the resinous cation-anion exchange systems to remove metallic salts from nonelectrolytes such as sugar, gelatine and glycerine. Water is essential for the operation of the exchangers, but the amount required is very small.

Other uses in the food field include the Matchett recovery of tartaric acid from winery wastes. Block's process for large-scale production of arginine, histidine and lysine, and Herr's separation and recovery of vitamins B_1 and B_2. (Through *Food Ind.*, **16**, *143-44, 1944.*)

Thickening solutions such as shampoos. *U. S. 2,307,047.* A method is employed for thickening a solution of at least 5 per cent of a monoethanolamine salt of the sulfoacetic acid amide of the lauric acid ester of monoethanolamine or other interface modifier having a lipophile group with at least eight carbon atoms and a hydrophile group, which comprises adding thereto a substantially less proportion of a caprylic acid monoester of triethanolamine, which ester is soluble in the solution, sufficient to thicken it appreciably.

Ester antioxidants. H. P. Kaufmann and W. Wolf. *Fette und Seifen*, **50**, *218-20.* Butterfat, olive, corn and poppyseed oils were treated with maleic and fumaric acids in open Erlenmeyer flasks in diffused daylight. Acid concentrations of 1:10,000 showed little effect in preventing spoilage of the oils by oxygen of the air for up to 20 weeks' exposure. Dimethyl maleate, dimethyl fumarate and distearyl maleate showed a noticeable antioxidative effect at 1:1000 concentration. It was found that the effect varied somewhat with the type of oil. (Through *Soap* **20**, *No. 7, 65, 1944.*)

Wax substitutes. British *558,854.* A substitute for hard vegetable waxes such as carnauba and candelilla is produced, with qualities of hardness, high melting point, toughness and lustre characteristic of the vegetable waxes, by condensing at a temperature of 125-250 deg. C. from 1/3 to 2/3 mols of a hydrogenated castor oil having an iodine value of 11 or less, with one mol of an aliphatic polyamine (e.g. diethylene triamine), the glycerin and partial glycerides resulting as by-products in this reaction being left in the product.

Stabilization of oxidizable substances. *U. S. 2,345,576.* A process for obtaining antioxidants from oil comprises contacting the oil with isopropanol at a temperature above room temperature so as to form a solution of the oil in the isopropanol, cooling the solution to below 0 deg. C. whereby layers are formed and separating the solvent layer containing the highly active antioxidant extracted from the remainder of the oil. (Through *Oil and Soap*, **21**, *180, 1944.*)

FLAVORS

Lemon Flavors and Flavor Compositions

With the passing years lemon flavorings maintain their importance both for household and commercial use

by MORRIS B. JACOBS, PH.D.
Professor of Chemical Engineering, Polytechnic Institute of Brooklyn

AT the turn of the century lemon flavors and lemon flavor compositions made lemon the most popular flavor next to vanilla type flavors. Very likely even today lemon-type flavors hold second rank to vanilla for this preference has been built up and maintained throughout the years. Lemon flavors have managed to maintain their importance both for commercial and household use.

LEMON OIL

The basis of natural lemon extract and many lemon flavors is lemon oil. This product is defined by the U. S. Pharmacopoeia XII as the volatile oil obtained by expression without the aid of heat from the fresh peel of the fruit of *Citrus Medica* Linné var. *Limon* Linné (Fam. *Rutaceae*) with or without the previous separation of the pulp and peel. This authority cautions against the use of oil of lemon in which a turpentine-like odor has been produced.

Lemon oil is a pale yellow or, at times, a deep yellow to greenish-yellow liquid with its own characteristic odor and taste resembling its source, namely, fresh lemon peels. Its specific gravity at 25 deg. C. should be within the range of 0.849-0.855; its optical rotation should be between + 57 deg. to + 65.6 deg. in a 100-mm. tube at 25 deg. C.; and its refractive index should fall within the range 1.4742-1.4755 at 20 deg. C. One volume of oil of lemon is soluble in 3 volumes of 95 per cent alcohol and it is miscible with absolute alcohol and with glacial acetic acid. Freshly prepared lemon oil, dissolved in 3 volumes of alcohol should be practically neutral or only very slightly acid to moistened litmus paper.

According to the British Pharmacopoeia, lemon oil is the oil expressed from lemon peel and contains not less than 4 per cent of aldehydes by weight calculated as citral. Actually the amount of citral or total aldehydes used to be about 6 to 7 per cent in unstandardized European lemon oils but the setting of the standard has tended toward the production of oils with citral contents close to the standard set by the British Pharmacopoeia. American lemon oils generally contain less citral than European types but the ester content is higher.

The chief components of lemon oil are said to be limonene and phellandrene which comprise about 90 per cent of the oil . Citral, citronellal, and the aldehydes, caprylaldehyde, pelargonaldehyde, and capraldehyde, comprise the next largest group of components. Geraniol, linaloöl, gamma-terpinene, octylene, methyl heptenone, camphene, linalyl acetate, geranyl acetate, methyl anthranilate, bisabolene or limene, and cadinene are also said to be present in small amounts. Citraptene, limettin, sometimes termed lemon-camphor, which appears to be a dimethoxy coumarin, is present to about 2 per cent. It has been claimed that genuine lemon oil does not contain appreciable amounts of pinene.

LEMON OIL ODOR

It is generally agreed that citral is chiefly responsible for what might be adequately termed the primary odor of oil of lemon but unquestionably the other aldehydes mentioned above and esters like linalyl and geranyl acetate modify and intensify the odor

and flavor to such an extent that citral alone cannot simulate the aroma of natural lemon oil.

TERPENELESS LEMON OIL

By separating most of the terpenes and sesquiterpenes present in lemon oil, the corresponding terpeneless and sesquiterpeneless lemon oils are produced. Ordinary terpeneless lemon oil contains from 42 to 45 per cent of citral, which is about 10 to 15 times as much as is present in ordinary lemon oil. Sesquiterpeneless lemon oil, that is lemon oil from which both the terpenes and the sesquiterpenes have been removed, contains from 65 to 75 per cent of citral or from 15 to 20 times as much as is present in ordinary lemon oil.

Since the terpenes and sesquiterpenes are the components of lemon oil which are least soluble in water, their removal produces a product whose solubility in water is greatly enhanced. Thus from 10 to 20 volumes of these terpeneless oils are soluble in 70 per cent alcohol and they are miscible with 90 per cent alcohol. This increased solubility is a most valuable property particularly in the production of lemon flavorings which are used in beverages where it is desirable to have complete solution of all components.

TINCTURE OF LEMON

This preparation is an alcoholic extract of fresh lemon peel. To make official Tincture of Lemon, place 500 grams of grated outer rind of lemon peel in a container with 900 ml. of 95 per cent alcohol. Stopper and stir or agitate at intervals for 3 days. Filter with the aid of purified talc and wash the residue on the filter with alcohol to make up the volume to 1 liter.

SPIRIT OF LEMON

Spirit of Lemon, which used to be a product defined by the U. S. Pharmacopoeia, was prepared by dissolving 50 ml. of oil of lemon in 900 ml. of deodorized 95 per cent alcohol. About 50 grams of freshly grated lemon peel were added to the mixture and then the entire mixture was macerated for 24 hours; after which it was filtered and sufficient 95 per cent alcohol was added to make the final volume 1 liter.

Both Tincture of Lemon and Spirit of Lemon are probably flavors of exceptional quality. They are rather expensive preparations to use on a commercial scale for they contain considerable alcohol. In addition if they are diluted with an aqueous mixture, some of the alcohol-soluble but water-insoluble components will precipitate. Still one more disadvantage of high alcoholic content lemon flavorings is the difficulty of mixing with sirups.

LEMON EXTRACT

Lemon Extract, as defined by the Food and Drug Administration, under the provisions of the Federal Food, Drug, and Cosmetic Act, is the flavoring extract prepared from oil of lemon, or from lemon peel, or both; it contains not less than 5 per cent by volume of oil of lemon. Since the vehicle of an extract, by definition of this Agency, must be ethyl alcohol of proper strength, the solvent in lemon extract, if the product is to be labeled in this manner, must be ethyl alcohol.

Actually the preparation of lemon extract is relatively simple; a given amount of oil is dissolved in alcohol and subsequently made up to volume with alcohol. Thus on the basis of 5 gallon batches, dissolve 1 quart of lemon oil in 95 per cent alcohol and make up to 5 gallons. This will require about 4 gallons and three quarts of alcohol. Allow to stand for a time and subsequently filter. This mixture contains the required 5 per cent of lemon oil and over 90 per cent of alcohol. A better product can be obtained by macerating about 2 pounds of grated lemon peel with this mixture for about 48 hours before filtering. Magnesium carbonate is often used as the filtering aid. Since the product, without the lemon oil obtained from the lemon peel contains the minimum amount of lemon oil required, it is probably best to add more than 1 quart of oil of lemon and correspondingly reduce the amount of alcohol in the proportion given above.

TERPENELESS EXTRACT OF LEMON

An analogous lemon extract is terpeneless extract of lemon. This product by definition is the flavoring extract prepared by shaking oil of lemon with dilute alcohol, or by dissolving terpeneless oil of lemon in dilute alcohol to obtain a product which contains not less than 0.2 per cent by weight of citral derived from oil of lemon. This product, as mentioned above, has the valuable property of being much more soluble in aqueous solvents than ordinary lemon extract.

One method of preparation is to dissolve 5 ml. of terpeneless concentrated oil of lemon in 500 ml. of 95 per cent of alcohol. Add 5 grams of turmeric to this mixture and allow to stand for about a day. Add sufficient water to make the volume 1 liter, allow to stand, for an additional day, stirring occasionally, and filter. Wash the filter with sufficient alcohol to restore the total volume to 1 liter. Since the amount of color present is greatly reduced, when terpeneless lemon oils are used, it is customary to add additional coloring matter. The usual coloring matter is an aqueous solution of tartrazine. However, since coloring matter is not an optional ingredient in the definition, if added color is used, it is necessary to label the product "Artificially colored."

The above proportion of 5 ml. of terpeneless oil of lemon in 1000 ml. of the mixture is well within the standard set by the definition. Thus if a 60 per cent citral content terpeneless oil of lemon is used, the finished product will contain close to 0.3 per cent of citral. Even if a 45 per cent citral content terpeneless oil of lemon is used, the finished product will contain 0.22 per cent of citral. On a 5-gallon basis, 2 fluid ounces of a terpeneless oil of lemon with 66 per cent of citral is required, and 2.2 fluid ounces of a terpeneless oil containing 60 per cent citral is required to make the necessary 0.2 per cent citral content of the finished terpeneless extract of lemon. If 2.5 gallons of 95 per cent alcohol are used as the solvent, the remainder being water, the final product will contain close to 47 per cent of alcohol.

IMITATION LEMON FLAVOR

A principal component of imitation lemon flavors is citral. One ounce of citral is equivalent to about 16 ounces of lemon oil in flavoring power. Because however, as noted above, citral alone cannot simulate closely enough a true lemon flavor, it is customary to add some lemon oil, itself, and various esters in order to produce a satisfactory substitute. The following formulations are rep-

resentative of imitation lemon flavor.

Mix together 20 fluid ounces of citral and 20 fluid ounces of lemon oil and dissolve in 5 quarts of 95 per cent alcohol. Add sufficient coloring solution, such as a solution of tartrazine in water, and then make up to 5 gallons with water. This mixture contains about 25 per cent of alcohol. A flavor containing less alcohol can be prepared by substituting terpeneless oil of lemon for lemon oil in a similar formulation. Often about 2.5-5 ounces of citric acid per 5 gallons of final product is dissolved in a portion of the water and is added to the flavoring before making to volume.

Lemon flavorings can be made using lemon oil without the addition of citral. For instance, mix together 320 ml. each of lemon oil, ethyl acetate and a saturated alcoholic solution of tartaric acid. Add 40 ml. of a saturated solution of succinic acid and then dilute the entire ester flavor mixture in the ratio of 1:2 with 95 per cent alcohol.

Another ester flavor mixture with a predominantly lemon character can be prepared by mixing the following components in the proportions stated: lemon oil 400, isoamyl butyrate 280, orange oil 150, isoamyl acetate 100, and ethyl acetate 70. Dilute the entire mixture in the ratio of 3:1 with 95 per cent alcohol.

NONALCOHOLIC LEMON FLAVORINGS

There are two principal types of nonalcoholic lemon flavorings. One is the emulsion flavor type. The other is a solution of a lemon ester flavor, described above, or of a lemon oil-citral mixture in a neutral, tasteless, and odorless edible vegetable oil. The following formulation is an illustration of the former type. Mix together 6 pints of lemon oil and 3 ounces of terpeneless oil of lemon. Add 9 ounces of gum karaya, 9 ounces of winter wheat flour, and a little water to the oils and rub up well so that all of the gum and flour is wet by the oil. Add 15 pints of glycerol and stir the entire mixture. Add additional water to make the total amount of water added 18 pints. Continue agitating until an emulsion is formed.

A simple preparation of the second type of nonalcoholic lemon flavoring can be made by dissolving a mixture of 1 pint of lemon oil and 1 pint of citral in practically odorless and tasteless edible corn oil, and making up to 5 gallons with the same oil.

Flavored Notes

It is best when enlarging or renovating a plant used for the manufacture of flavors, or in the establishment of a new plant to seek expert opinion on the type of equipment to use. Such preliminary consideration often will obviate many difficulties that might arise without proper planning and advice.

* * *

Onion extract made from onions is often fortified by the addition of allyl isothiocyanate in the ratio of about 1 gram to 500 grams of extract.

* * *

The agreeable odor of cigar smoke is said to be attributable to the alkaloid, myosinine. The use of this material as a component in trace quantities in tobacco has been patented. Consumer preference tests show that tobaccos treated with this alkaloid are preferred to untreated tobaccos.

* * *

A simple method of making an orange flavor or extract cloudy is to add a few drops of a tincture of benzoin.

* * *

It is interesting to note that even horses like a little flavor in their food. A relatively common practice is to add fenugreek and cumin to hay with a poor flavor. At times, a trace of asafoetida is added also.—*M.B.J.*

New Sugar Central, Mexico

A new sugar central at San Rafael, State of Sinaloa, Mexico, is planned and is expected to be in operation about December 1, 1947. The mill will have a capacity for grinding 4000 metric tons of cane per 24 hours, and when in full operation will produce about 40,000 tons of refined sugar annually.

The central, part of a completely new sugar project, will be built on sugar lands not yet placed under irrigation but included in the Sanalona district being developed by the National Irrigation Commission.

Mexican Exports of Lime Oil

Mexico's exports of lime oil declined from 41.8 metric tons in 1944 to 39.7 tons in 1945, most of the oil being exported to the United States. The reduction is attributed to a decrease in the demand for lime oil in the United States because of smaller production of soft drinks and other products in which lime oil is used. Mexico's lime-oil producers, nevertheless, are anticipating increased exports in the near future.

A group of growers near Valles, in the State of San Luis Potosi, is considering the establishment of a plant (with a daily capacity of between 25 and 30 liters) to produce oil of lime. Nearly all the lime oil produced in Mexico is distilled, and between 3½ and 4 kilograms are obtained from each ton of fresh limes.

Approximately 90 per cent of Mexico's production is normally exported. —*Foreign Commerce, July 6.*

Clove Crop in Zanzibar

Zanzibar's 1945-46 clove crop of only 1,200 long tons was the smallest on record. The 1944-45 crop yielded 10,000 long tons and the 1943-44 crop 16,000 long tons. The previous record low was in 1938-39, when only 2,000 tons were picked.

The stock pile is also at a low ebb, being slightly in excess of 2,000 long tons. The distillery, which turned out between 500 and 600 pounds of clove oil daily during March, 1946, was operating at only half its capacity, and stocks of buds and stems then on hand indicated a complete shut-down in May.

The principal reason for the small 1945-46 crop was the drought which prevailed throughout British East Africa during the past 3 years.

Another reason was the prevalence of "sudden death," a disease which attacks the clove trees and causes the leaves to turn brown and fall off. Neither the cause nor the cure for this disease is known. It is reported that "sudden death" affects only the clove trees on Zanzibar and not those on Pemba, and that if it is not checked there will be no clove trees left on Zanzibar in about 12 years.—*Foreign Commerce, June 29.*

Jasminblend

IMPORTANT MESSAGE TO *PERFUMING CHEMISTS:* Since 1768 the House of Chiris has led the world in the production of floral absolutes. In 1946 the House of Chiris brings to you the result of years of research . . . JASMINBLEND. This product is exactly what the name implies, a blended Jasmin base suitable wherever the Jasmin note is required in your compounds. We will say no more in praise of this beautiful product except to ask you to forward your sample requests.

ANTOINE CHIRIS

COMPANY, INC.

115-117 EAST 23rd STREET, NEW YORK 10, N. Y. SOLE DISTRIBUTORS

ETS ANTOINE CHIRIS, GRASSE, FRANCE

ANTOINE CHIRIS, LTD., LONDON, ENGLAND

The Prevention of Oxidative Flavor Changes

*The N.D.G.A. currently being produced is more refined than some earlier samples . . . It is practically odorless, only faintly colored and dissolves readily in fats . . . Its use in combination with animal and vegetable fats is suggested**

by ALADAR FONYO, CH.E.
William J. Stange Co., Chicago, Ill.

The article on these pages describing the use of N. D. G. A. as an antioxidant for flavoring oils, indicates that the material has numerous uses, wherever antioxidants are required.

Originally N. D. G. A. had been used and tested on natural animal and vegetable fats. A number of publications have appeared in the literature describing its use for this purpose. Concentrations as low as 0.01 per cent have been found sufficient for fats.

The N. D. G. A. currently being produced is substantially more refined than some of the earlier samples. It is practically orderless, only faintly colored and dissolves readily in fats. Its use in combination with animal and vegetable fats, such as in lipsticks, various kinds of make-up and in creams is suggested. Since rancidity is one of the industry's major problems, it will be found worthwhile to experiment with this new antioxidant.

IT is very gratifying to speak of flavor before an audience to whom it means more than merely a sensation. Flavor to you means something concrete with which you deal and live. You possess the art and science of producing flavoring substances. You are skillful in this art, you can and do manufacture fine flavors. That is, you do everything within your power to make your products faultless. But there is something beyond your control that threatens to nullify your most earnest efforts. I am referring to the constant danger of atmospheric oxidation that may impair the delicate flavors of your products during storage.

Atmospheric oxidation is a process whereby certain substances spontaneously combine with the oxygen of the ever present air. The oxidized substance becomes a new compound or polymerizes into several new compounds of different physical and chemical properties. The original flavor is lost or even worse, foreign flavors develop. Typical examples of oxidative changes are the rancidity formation in edible fats and oils, the terpeny flavor development in citrus fruit oils. Certain substances are more susceptible to oxidative changes than others. Compounds with double bounds in their molecules, such as glycerides of unsaturated fatty acids or the terpenes of essential oils are easily oxidized.

INFLUENCES ON RATE OF OXIDATION

We know that foods and beverages exposed to heat or light deteriorate in flavor much faster than when kept in a cool place and protected from sunlight. We also know that certain metals such as iron and copper and certain organic substances such as enzymes hasten oxidative changes. Thus radial energy (heat and light) and catalytic force (metals and enzymes) accelerate oxidation.

Why is it then that the ripening nuts and cereals of high oil content do not get rancid even though exposed to heat and sunlight and contain metals and oxidative enzymes? There must be a protective mechanism provided by Nature that prevents rancidity. Indeed, crude cottonseed oil keeps better than the refined oil. Evidently the crude oil contains natural protective elements that are at least partially removed in the process of refining. Scientists searched for these protective elements of Mother Nature, found them and called them antioxidants.

NATURAL ANTIOXIDANTS

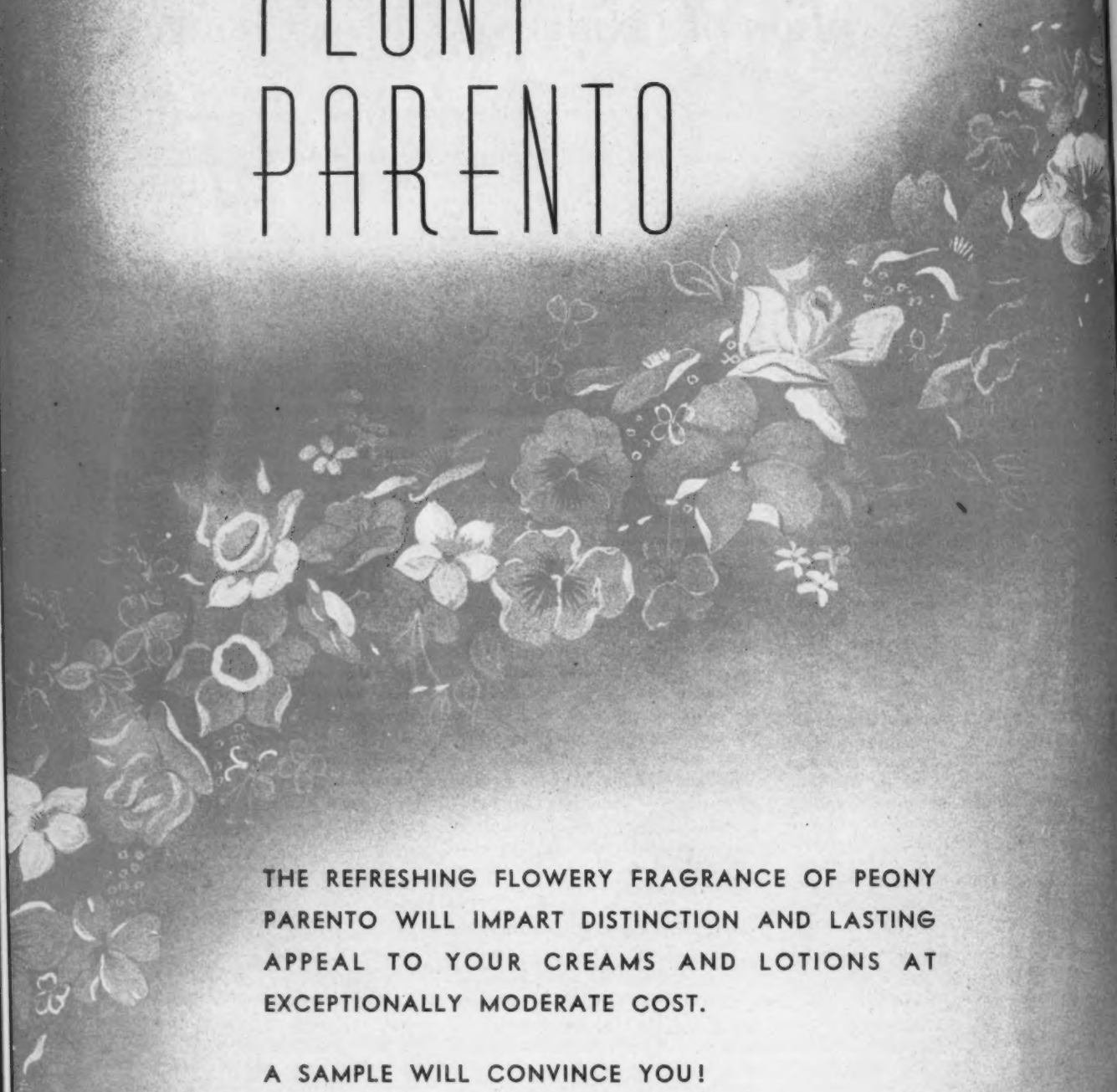
Innumerable products of the vegetable kingdom were investigated and even the contents of animal tissues were searched. They found antioxidants in wheat germ, in corn, cottonseed and sesame oils. They found some in spinach, lettuce, carrots and tomatoes. They found one in the thyroid glands. Some of them contained more antioxidants than others and most of them only minute quantities.

The question was, how to utilize them for practical purposes. At first it was recommended that a crude oil of proportionally higher antioxidant content be added to oils that contained little. Then they made a liquid concentrate from crude oil which at best was only of limited strength. More recently, the active principles of the wheat germ oil, the tocopherols were produced in a highly concentrated form by molecular distillation and used as an antioxidant of markedly increased efficiency.

The Musher Patent treats fats and oils and other food products with finely ground oat, barley, soya bean flour, etc., or with an extract made from them. The Swift Patent utilizes the extract of gum guaiac as an antioxidant for lard.

* This article was presented before the meeting of the Flavoring Extract Manufacturers Association in Chicago.

PEONY PARENTO



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Some investigators found that lecithin, ascorbic, citric, phosphoric and other acids improved the stability of oils. They are, however, not considered antioxidants but synergists, that is, substances that increase the efficiency of true antioxidants.

NORDIHYDROGUAIARETIC ACID

In the midst of such intensive efforts in search of naturally occurring antioxidants, nordihydroguaiaretic acid was discovered accidentally. The College of Pharmacy of the University of Minnesota was investigating the pharmaceutical properties of herbs and weeds used in the practice of Indian medicine. From one of them, the creosote bush, an active substance was isolated and identified as nordihydroguaiaretic acid. When its structural formula was established Dr. Lundberg of the University of Minnesota recognized it as a potential antioxidant and investigated its properties in collaboration with Dr. Lauer under the direction of Dr. Halvorson of the Hormel Institute. They found its antioxidating efficiency almost sensational.

The plant in which nordihydroguaiaretic acid was discovered in 1942 grows abundantly in our own country. Millions of acres of arid land in Texas, New Mexico, Arizona, California, Nevada, Colorado and in Old Mexico are literally covered with it. The botanical name of the plant is Larrea divaricata. It is commonly called the creosote bush because its leaves emit an odor resembling creosote. It is the only plant known to contain N.D.G.A.

EXTRACTION OF N.D.G.A.

The process of extraction of N.D.G.A. from the creosote bush was developed and patented by Dr. Gisvold of the University of Minnesota. We collaborated with the University in the application of this process to production on commercial scale. We were invited by the University of Minnesota because of our familiarity with the technique of plant extraction gained by our long experience in extracting aromatic herbs and spices.

At first, we experienced considerable difficulties, especially in the purification of the compound as some of the objectionable coloring and odoriferous substances of the weed clung tenaciously to the N.D.G.A. crystals. However, by constant improvement in the process and equipment we obtained N.D.G.A. in a highly purified form free from odor or coloring.

PROPERTIES OF N.D.G.A.

N.D.G.A. is a well defined chemical compound. Its molecular formula is $C_{18}H_{22}O_4$. Its structural formula is described as beta gamma dimethyl, alpha delta-bis (3, 4 dihydroxy phenyl) butane. (1).

N.D.G.A. is a white crystalline powder of a yellowish hue. The crystals appear as flat needles under the microscope. It has a melting point of 184 deg. C.

N.D.G.A. is very soluble in alcohol and ether, slightly soluble in chloroform, hot benzine or hot water. Insoluble in cold water. It is quite soluble in vegetable and animal oils and fats and in essential oils, in most of them we can dissolve over one-hundred times the amounts of N.D.G.A. that are necessary for their protection.

STABILIZATION WITH N.D.G.A.

Studies of the prevention of oxidative flavor changes in foods and beverages with the use of N.D.G.A. began immediately after its discovery. Most intensive studies were conducted with products that needed protection most, such as lard and other animal fats. Under our grant, the Hormel Institute of the University of Minnesota is engaged in the investigation of N.D.G.A. as applied to packing house products. Some of the results of their work were published in the official journal of the American Oil Chemists Society, *Oil & Soap*. Data furnished in these reports showing the tremendously increased keeping time of N.D.G.A. treated lard were astounding.

There is a reliable accelerated test for determining the relative keeping time of edible fats and oils, the so-called Active Oxygen Method. In the apparatus used, the fat is aerated at the temperature of 100 deg. C and the number of hours required for turning it rancid is referred to as the keeping time.

Lard of 11 hour keeping time under this test remained unchanged for 210 hours when .01 per cent of N.D.G.A. was added to it. In other words 1 pound of N.D.G.A. in 10,000 pounds of lard increased its stability almost twenty-fold. Similar results were obtained with lards of lower original keeping time. The average commercial refined lard holds up under the accelerated test for around 3-4 hours. Adding .01 per cent of N.D.G.A. to average lards increases their keeping time from anywhere between 50 and 80 hours which is considered sufficient for all practical purposes.

The efficiency of N.D.G.A. can be even further increased with the addition of synergists. The Research Laboratory of the American Meat Institute and others, found that adding a small amount of citric or phosphoric acid increased the efficiency of N.D.G.A. to such an extent that 11 pounds was sufficient to treat 20,000 or even 40,000 pounds of lard.

The use of N.D.G.A. in butter, cream, ice cream and dehydrated milk, etc., is being investigated by the Department of Dairy Husbandry of the University of Illinois, where we established a fellowship, under the direction of Professor Tracy, one of the foremost authorities in the dairy field. Preliminary studies indicate that N.D.G.A. not only helps to preserve the fresh flavor of dairy products but to retain their vitamin potencies.

Frozen and salted fish rapidly undergo oxidative changes. Experiments were carried out by the Subsistence Research Laboratory of the Chicago Quartermaster Depot in collaboration with Commander Silver of the United States Navy with the application of N.D.G.A. to retarding rancidity in these products and developed a method that increased their keeping time over six-fold.

The Subsistence Research Laboratory under the direction of Capt. Horne developed a process with the use of N.D.G.A., for retarding rancidity of roasted peanuts for Combat Rations. The same process is applicable to increasing the keeping time of potato chips.

Many other foods were treated with N.D.G.A. in our laboratories as well as in that of other industries, such as salad oils, salad dressings, mayonnaise, chocolate and caramel, cocoanut shreds, coffee and coffee extracts, etc.

Our experiments proved that N.D.G.A. is a highly efficient antioxidant for citrus fruit oils as well as other essential oils. Figures as revealing as those for edible fats and oils cannot be furnished. Unfortunately, the

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accelerated test used in determining the keeping time of edible oils is not applicable to essential oils.

We tried other accelerated tests, such as exposing the oils to artificial infra-red and ultra-violet rays but the results varied to such an extent that we did not consider them dependable. Therefore, we resorted to the time tested procedure of determining the shelf life by exposing the oils to diffuse sunlight at room temperature.

In one of our tests cold pressed lemon oil was treated with N.D.G.A. in concentrations of .005, .01, .02 and .05 per cent. We dissolved the N.D.G.A. directly in the oil at room temperature. The samples were placed on the laboratory shelf in stoppered flint bottles and exposed to light. The control developed rancid, terpeny odor in 28 days while the treated oils kept fresh considerably longer from 120 to 260 days. The increased number of days were in proportion to their increased N.D.G.A. concentration.

We tried N.D.G.A. in emulsions of citrus fruit oils using glycerine, gum arabic and gum tragacanth as emulsifying agents. The oils contained in the emulsion were treated with N.D.G.A. in concentrations from .005 to .05 per cent. Invariably we obtained a better keeping time with the emulsions prepared with N.D.G.A. treated oils than with the controls. We found that only a small percentage of the N.D.G.A. diffused into the water phase from the oil.

N.D.G.A. was also active in an alcoholic extract of lemon oil. However, it was necessary to slightly acidify the alcoholic extract in order to improve its stability.

We prepared finished beverages with emulsions and alcoholic extracts of untreated and of N.D.G.A. treated oils, exposed them to sunlight and found quite a noticeable difference in flavor indicating that the protective action of N.D.G.A. is carried through into the finished product.

There is still a lot of research work ahead of us especially for finding better methods of application of N.D.G.A. to the various food products. However, at this stage I can say without undue optimism that N.D.G.A. will prove to be one of the most useful discoveries of these times, bringing economic benefits to the manufacturers of foods and beverages and greater enjoyment of their products.

Technical Abstracts from Scientific Literature

Raspberry sirup. *G. Conci. Boll. chim. farm.* **81**, *121-4, 1942; Chem. Zentr. 1943, I, 863.* The following procedure of manufacturing is proposed: Mash the berries, triturate with 2-5 per cent sugar, add 0.2 per cent yeast, allow to stand in an open vessel for 5-6 days. At the end of the fermentation period, express, allow the juice to set for 6-8 days in a closed vessel, filter through paper, heat in the smallest vessel on a water bath to boiling, overlay with some alcohol and close with sterile stoppers. In this wine, which keeps for several months, dissolve with heat double the amount of sugar and skim. Other methods of preparation and the properties of the sirup are discussed. (Through *C. A.*, **38**, *3413, 1944.*)

Chocolate. *U. S. 2,336,346.* A process is employed for making chocolate which resists softening and is substantially free from blooming in hot weather, which involves pressing cacao butter from liquor chocolate, cooling and pressing the cacao butter to remove a low-melting fraction from it, and combining the remainder of the cacao butter with the liquor chocolate residue.

Definitions and standards of identity for cacao products. *Federal Register* **9**, *14,329-337.* Regulations giving standards of identity and for label statements for optional ingredients for cacao products are promulgated under the Federal Food, Drug and Cosmetic Act. The products standardized are cacao nibs, cocoa (c.) nibs, or cracked c.; chocolate (ch.) ch. liquor, making ch., ch. coating, or bitter ch. coating; breakfast c. or high-fat c.; c. or medium-fat c; low-fat c.; sweet ch. or sweet ch. coating and alternate identities of less sweetness, i. e., semisweet ch. bittersweet ch., semisweet ch. coating, or bittersweet ch. coating; milk ch., sweet milk ch., milk ch. coating or sweet milk ch. coating; skim milk ch., sweet skim milk ch., or skim milk ch. coating; buttermilk ch. or buttermilk ch. coating; mixed dairy product ch. or mixed dairy product ch. coating; sweet ch. and vegetable fat (other than cacao fat) coating. Provision is made for optional alkali treatment of the cacao ingredients. Certain spices, flavors (natural and artificial) and other food flavoring ingredients are permitted to be added in some cases. Emulsifiers (lecithin and mono- and diglycerides of fat-forming fatty acids in combination with monophosphate derivs. thereof) are permitted in chocolate products identified as sweet or contg. some form of milk and in sweet chocolate and other vegetable fat coating.

Milk dessert gel. *U. S. 2,344,090.* Casein precipitated as a homogeneous, smooth gel through the use of a lactone forms the basis of a new dessert, according to a recent patent. A lactone which liberates acid slowly and uniformly and which is itself hydrolyzed to an edible sugar acid, such as glucono δ lactone, is used. In this case the product of hydrolysis is gluconic acid. Advantages in flavor and consistency are claimed for the new product.

On the basis of the weight of water to be used, 10 to 20 per cent of a good grade of commercial dry powdered milk and 3 to 10 per cent of the glucono δ lactone are mixed together. Sugar is added, 20 to 40 per cent, and a suitable amount of flavoring. The powdered mix is then dissolved in the water at 86 to 122 deg. F. Edible dry soluble casein salts can be substituted for the powdered milk. Other lactones may be substituted for the glucono δ lactone, the quantity of any such acid-producing substance being selected to bring the pH to approximately 4.2. (Through *Food Industries.*)

Synthetic spices comprising spice oils and edible carriers. *U. S. 2,356,501.* Products which are suitable for use in flavoring foods and which do not readily become rancid are prepared by the heating, under steam pressure in a closed chamber, a cereal grain product at least approaching the fineness of flour, such as a dark rye or other flour, with exclusion of air from the chamber until the natural sugars of the cereal grain product have been carmelized, then cooling the carmelized cereal grain product, and adding to it a spice oil. (Through *C. A.*, **39**, *136, 1945.*)

SOAPS

The Hydration of the Poly Phosphates

The number of sodium phosphates available has been increased because of commercial production of several so-called poly phosphates . . . The experimental results presented pertain to industrial processes

by G. CORSARO, M.Sc., PH.D.

THE number of sodium phosphates available has been increased in recent years because of the commercial production of several so-called poly phosphates.

The relative or comparative solubilities, pH characteristics in water solutions, their sequestering abilities, and their stability in water solution are important factors in their industrial applications. With this in mind a study of these properties from a practical standpoint was attempted and the results of the observations made are outlined in this paper.

FIVE POLY PHOSPHATES

Sodium poly phosphates are produced by dehydration of ortho sodium phosphates at elevated temperatures. Their composition may be deduced from their constituent Na_2O to P_2O_5 ratios. Five poly phosphates are available, which are listed below along with their empirical formulae calculated from the Na_2O to P_2O_5 ratios.

Tetra sodium pyrophosphate	$Na_4 P_2 O_7$
Sodium tripolyphosphate	$Na_5 P_3 O_{10}$
Sodium tetraphosphate	$Na_6 P_4 O_{13}$
Sodium hexametaphosphate	$Na_6 P_6 O_{18}$
Sodium septaphosphate	$Na_9 P_7 O_{22}$

The information and experimental results presented in this paper pertain to commercial products. No attempt was made to work with pure substances, since the data given here is intended to apply to industrial processes, making use of the phosphates as they are obtained from the manufacturer.

It is important to note that whereas sodium tetraphosphate and sodium tripolyphosphate may be considered compounds of definite composition, the remaining three members of this class are glasses of indefinite composition. That is, their ratios of Na_2O to P_2O_5 may vary with the degrees of hydration, and therefore no conclusive information may be gathered about the molecular composition of these substances.

A manufacturer of one of these phosphates cites an example to illustrate the last point made. So called sodium tetraphosphate, of assumed $Na_6P_4O_{13}$ composition, represents a ratio of 1.5 Na_2O to 1.0 P_2O_5. Actually this ratio may be 1.35 to 1.0 in the commercially prepared product. Hence, the properties of the substance represented by the latter ratio will be different from those of the higher ratio of Na_2O to P_2O_5. For instance, the pH value of a 1.0 per cent solution of the completely dehydrated compound is 9.15, while that of lower ratio may fall to values below 8.0. It should be observed, however, that production methods tend to give fairly uniform water content in glasses, and it has been found to be very consistent, even among competitive grades of the same product.

APPLYING POLY PHOSPHATES

The whole group of poly phosphates have application in detergent and water treatment practices. These applications are related, since in both, the effort is made to overcome the objectionable effects of mineral matter contained in water supplies used.

At least four properties possessed by these poly phosphates are important to the two applications given above. These are:

1. The solubility of the phosphates in water.

2. The pH values of their water solutions.

3. The sequestering or complexing effect they have towards mineral mat-

ter such as calcium, magnesium, and iron ions, which are common constituents in natural water supplies.

4. The stability of the phosphates in solution with time and at different temperatures, that is, their ability to remain in solution as the poly phosphates rather than to hydrate back to the ortho phosphate.

EXPERIMENTAL DATA

It is the object of this paper to review these properties and to present some experimental data with particular reference to the last two.

Table 1 gives some information about the solubilities of the phosphates. Sodium tetraphosphate and sodium tripolyphosphate may be considered to have little tendency to absorb water from the atmosphere, but the remaining three members are glasses which easily absorb moisture from the air, to the extent that caking may occur. Care should therefore be taken when combining these products with other cleaner materials.

TABLE 1

	Solubility in parts per 100 parts water
Tetra-sodium pyrophosphate	7.5 at 20° C.
Sodium tripolyphosphate	15.0 at 18° C.
Sodium tetraphosphate	150 or more
Sodium hexametaphosphate	150 or more
Sodium septaphosphate	150 or more

Table 2 gives the pH values of 1.0 per cent solutions of the phosphates. These values are those most generally accepted for the individual phosphates listed, although any exact single value is without significance unless the composition of the phosphate is given at the same time. The results are those obtained electrometrically using a calomel-glass electrode system.

TABLE 2

pH Values of 1.0 Per Cent Solutions of the Poly Phosphates

Tetra-sodium pyrophosphate	10.0 to 10.2
Sodium tri polyphosphate	9.7 to 9.8
Sodium tetraphosphate	7.4
Sodium hexametaphosphate	6.5
Sodium septaphosphate	7.1

These values are those obtained with the commercial products although they will depend on the Na_2O to P_2O_5 ratio of the product.

Thus, sodium tetraphosphate may give a pH value in 1.0 per cent water solutions as high as 9.15 if the product is prepared by complete dehydration.

Perhaps the most outstanding property of these substances is their ability to sequester or complex out calcium and magnesium mineral hardness so that softening of water may be accomplished without the appearance of precipitate, even in the presence of soaps or other softening chemicals.

This complexing action requires that an excess of phosphate is present compared to the hardness content of the water.

Thus, the reaction between calcium chloride and sodium hexametaphosphate may be written as follows:

$$2\,Ca^{++} + Na_6\,P_6\,O_{18} \longrightarrow Na_2\,Ca_2\,P_6\,O_{18} + 4\,Na^+$$

$$Ca^{++} + Na_2\,Ca_2\,P_6\,O_{18} \longrightarrow Ca_3\,P_6\,O_{18} + 2\,Na^+$$

After the complex anions take up calcium ion equivalent to the sodium therein, a slight excess of calcium ion then precipitates the calcium salt of the complex. On the other hand, barium and strontium salts cause an immediate precipitate with only a few p.p.m. of these substances added to solution of the phosphates, indicating that these ions are not taken up by the anion, and which is probably due to the fact that their ionic diameters, compared with calcium and sodium, are too large to fit into the lattice making up the anion.

The pure phosphates are, therefore, apparently made up of two or more sodium cations, and a complex anion containing one or more replaceable sodium atoms.

A method described here was devised to determine directly the amount of undecomposed polyphosphate in solution. This method is based on the reactions given for calcium ion and polyphosphate.

A 0.05 molar calcium chloride solution, or what amounts to an 0.5 per cent calcium carbonate, was prepared by dissolving calcite crystals in hydrochloric acid, driving off the excess acid by heating to dryness, and dissolving this residue in the required amount of water.

Solutions of the polyphosphate were prepared by taking 0.025 moles of the apparent molecular weight of each substance and diluting the solutions to one liter.

Twenty cc portions of the phosphate solutions were then titrated with the calcium chloride solutions. The end point was taken at the first appearance of a permanent precipitate. The titration is best carried out by viewing the solution against natural light, and by looking through the solution in a small titrating flask. Titration readings could be duplicated within 0.1 cc.

Table 3 summarizes the results of these titrations. The first column gives the results of the titration on 20 cc. portions of the polyphosphate solutions as made up, and the second column, the results on the basis of 1.0 per cent solutions of the polyphosphate, using the data from the first column to calculate those given in the second column.

TABLE 3

Titrations with 0.05 Molar Calcium Chloride Solutions

Phosphate	cc $CaCl_2$	cc $CaCl_2$
Tetrasodium pyrophosphate	3.3 cc	4.2 cc
Sodium tripolyphosphate	8.8	9.4
Sodium tetraphosphate	11.7	9.9
Sodium hexametaphosphate	20.2	13.1
Sodium septaphosphate	26.4	13.9

The comparable sequestering abilities of the phosphates are best judged by the titrations of calcium chloride on the basis of using 1.0 per cent solutions of the poly phosphates. In other words, this titration indicates directly the ability of the same weight of phosphates to retain calcium ion sequestered on a weight basis.

Table 4 gives a restatement of the same data except that the comparison is made in the reverse order, namely that it gives the amounts of poly phosphate to complex out the same amounts of calcium ion. Table 4 gives the data in the form which can be used directly in practice. It should be noted that in making the comparison that the mineral hardness content for both calcium and magnesium is reported in terms of calcium carbonate, so that the data given applies equally well to calcium and magnesium salts, as long as hardness measurements are reported in terms of calcium carbonate and which is according to standard practice.

TABLE 4

P.P.M. of Poly Phosphate to Sequester 100 P.P.M. of Calcium Carbonate

Tetrasodium pyrophosphate	800 p.p.m.
Sodium tripolyphosphate	417 p.p.m.
Sodium tetraphosphate	384 p.p.m.
Sodium hexametaphosphate	306 p.p.m.
Sodium septaphosphate	293 p.p.m.

These results should not be confused with the amounts of these poly phosphates required to soften 100 p.p.m. of calcium carbonate hard-

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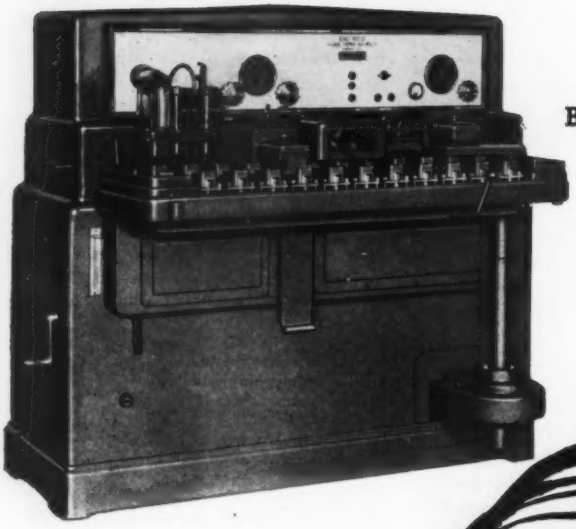

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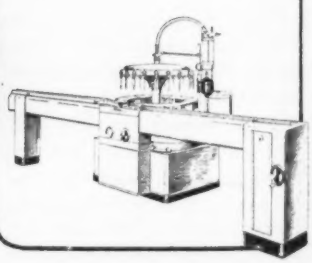

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ness. The results of Table 5 are based on the fact that all the sodium of the poly phosphate is replaced by calcium ion.

TABLE 5

Total Amount of Phosphate Required to Soften 100 P.P.M. of Calcium Carbonate

Tetrasodium pyrophosphate	133 p.p.m.
Sodium tripolyphosphate	148 p.p.m.
Sodium tetraphosphate	154 p.p.m.
Sodium hexametaphosphate	204 p.p.m.
Sodium septaphosphate	174 p.p.m.

It should be pointed out that in practice the application of poly phosphate is usually made in conjunction with other alkali substances such as ortho phosphates, silicates, and carbonates. The advantage in using any poly phosphate in such preparations lies in their ability to prevent any precipitation of mineral hardness in combination with any of the ions listed, in addition to other benefits derived from their use.

Where soap products are used, the full benefit from soaps may be derived if any hardness in water with which soap is used is first counteracted. In this way, no soap is lost through precipitation as insoluble soaps, nor is any undesirable effect by the presence of insoluble soaps obtained in the presence of poly phosphates in solution. It should also be noted that other benefits from the presence of excess poly phosphates may be obtained in detergent application, than given here.

STABILITY OF POLY PHOSPHATES

Following is a presentation of data bearing on the property of stability of the poly phosphates in solution with time and at given temperatures.

We may represent the titrations of calcium chloride on 20 cc. portions of the 0.025 molar solutions of the phosphates as directly proportional to the actual poly phosphate content of the solution. If the results of titrations on cold freshly prepared solutions of the poly phosphates are used to represent 100 per cent undecomposed phosphate, a method is then available for determining the rate of hydration of the poly phosphates with time and at given temperatures.

Attention is directed to the fact that the process of hydration does not necessarily proceed from the poly phosphate in question directly to the ortho phosphate. For instance, hydration may result in the formulation of a lower poly phosphate with reference to apparent molecular weight such as tetrasodium pyrophosphate. The important requirement in the method of estimation for undecomposed poly phosphate is the fact that what is measured is only the amount remaining undecomposed even though more than one material remains in solution capable of demonstrating sequestering action.

As example, if it requires 10 cc. of 0.05 molar calcium chloride on a 20 cc. portion of phosphate solution of 1.0 per cent concentration, and any amount less than this, after a given interval of time, then the fraction of the second titration over that of the first, represents the fraction remaining undecomposed. It is then a simple matter to convert to p.p.m. of poly phosphate remaining.

For studies at 100 deg. C., 20 cc. portions of the phosphate solution were refluxed for 5, 10, 20, 30, 40, 50, etc., minutes, and titrated after quickly cooling the solutions at the end of each interval of time.

In the same way solutions of the phosphates were kept in a constant temperature water bath at 45 deg. C. and 60 deg. C. and titrated at intervals of several hours. Tables 6, 7, and 8 summarize the results of these experiments.

It is evident from these results that tripolyphosphate is the most stable of the four polyphosphates, and that the rate of conversion to ortho phosphate ion, or hydration, increases as the size of the anion increases. Figures 1, 2, and 3 show the plots of the results given in Tables 6, 7, and 8 where the log. of cc. of calcium chloride solution is plotted against time. The figures do not show curves for sodium tripolyphosphate since it may be observed that at the lower temperatures these would be almost horizontal to the X axis, indicating almost zero slopes.

The straight lines produced by this manner of plotting indicates, as may be expected, that the hydration reactions are first order, that is one molecule decomposes, and the rate of decomposition is proportional to the concentration of that molecular species. Moreover, since these are strictly first order reaction, it is possible to evaluate the reaction rate constants from the slopes of the lines of the plots given, and also to compare these against the calculated values from the first order reaction rate equation.

The latter is given by:

$$k = \frac{2.303}{t} \cdot \log \cdot \frac{a}{c}$$

where a is the original concentration or its equivalent in cc. titration with calcium chloride, and c is the remaining concentration in terms of cc. calcium chloride, after time t.

The slopes of the lines given are equal to —2.303/k, where k in both expressions is the reaction rate constant.

TABLE 6

Titrations with 0.5 Per Cent Solutions of Calcium Chloride Solutions, Reflecting the Amounts of Undecomposed Poly Phosphates Remaining, at 100 deg. C.

Phosphate	5	10	20	30	40	50	60	100 Minutes
Tetrasodium pyrophosphate			No determination made					
Sodium tripolyphosphate	8.2		8.4				6.2	6.1
Sodium tetraphosphate		9.3	7.4	6.1	4.5	3.6	3.0	
Sodium hexametaphosphate	17.3	15.0	11.0	8.6	6.0	4.0	3.5	
Sodium septaphosphate		21.0	15.7	11.5	8.8	6.4	4.6	

TABLE 7

Titrations with 0.5 Per Cent Solutions of Calcium Chloride Solutions, Reflecting the Amounts of Undecomposed Poly Phosphates Remaining, at 60 deg. C.

Phosphate	5	23.5	53	71 Hours
Sodium tripolyphosphate	7.9	7.9	7.6	7.6
Sodium tetraphosphate	10.6	8.9	6.8	5.7
Sodium hexametaphosphate	17.2	11.9	5.9	4.0
Sodium septophosphate	22.5	18.0	10.9	8.1

TABLE 8

Titrations with 0.5 Per Cent Solutions of Calcium Chloride Solutions, Reflecting the Amounts of Undecomposed Poly Phosphates Remaining, at 45 deg. C.

Phosphate	51	76	126	168	240 Hours
Sodium tripolyphosphate	8.3	8.3	8.3	8.3	8.2
Sodium tetraphosphate		10.3	9.2	8.8	7.6
Sodium hexametaphosphate	17.4	15.1	12.9	11.3	8.5
Sodium septaphosphate	22.7	22.1	18.9	17.6	14.9

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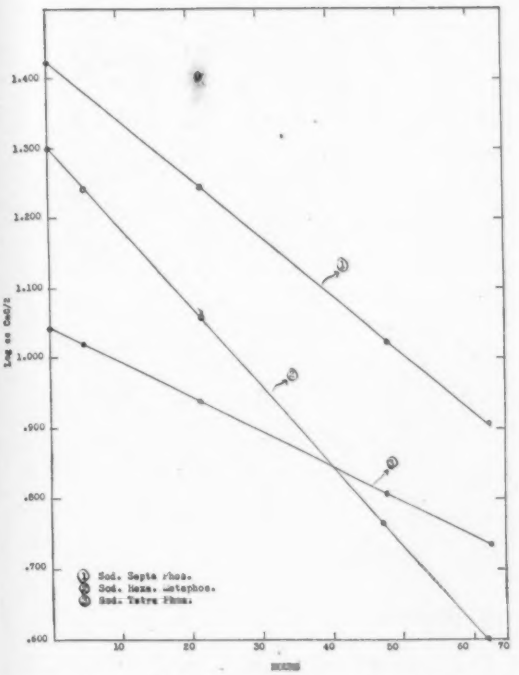

Fig. 1. Rates of hydration of poly phosphates at 60 deg. C.

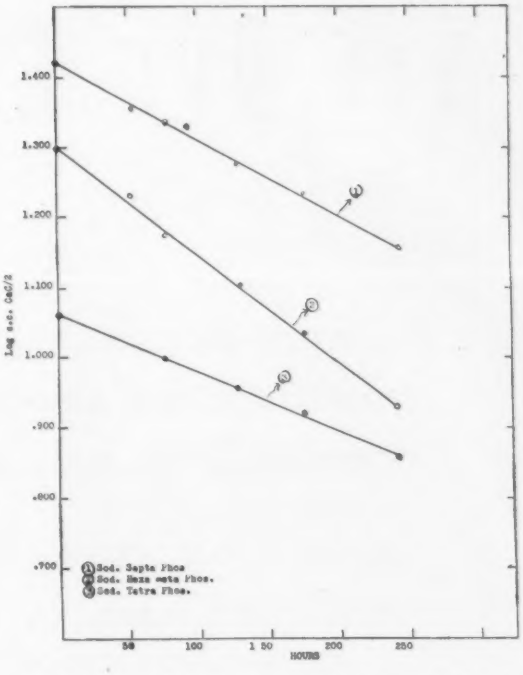

Fig. 2. Rates of hydration of poly phosphates at 45 deg. C.

Table 9 gives a tabulation of the results of calculation of the constants using the expression given above, and also those calculated from the slopes of the plots for comparison purposes. The calculated values are the average of three or more sets of values taken from Tables 3, 6, 7, and 8. The values for the constants are in terms of concentration units per hour.

TABLE 9

Reaction Rate Constants at 40 deg. C, 60 deg. C, and 100 deg. C.

Phosphate	Temp. deg. C.	K (Calc.)	K (graphical)
Sodium tetraphosphate	100	1.374	1.368
Sodium tetraphosphate	60	.00936	.00938
Sodium tetraphosphate	45	0.00165	0.00162
Sodium hexametaphosphate	100	1.752	1.752
Sodium hexametaphosphate	60	0.0228	0.0228
Sodium hexametaphosphate	45	0.00343	0.00340
Sodium septaphosphate	100	1.782	1.734
Sodium septaphosphate	60	0.0166	0.0162
Sodium septaphosphate	45	0.00249	0.00244

Figure 4 shows the plot of the log. of the reaction rate constants against 1/T. These as will be noted are straight lines conforming with predications of the Arrhenius equations relating reaction rates with temperature, namely, that the log. of the reaction rate constant is inversely proportional to the absolute temperature at which the constant has been evaluated.

Although the constants for the reaction rates have been evaluated in terms of cubic centimeters titration of calcium chloride on twenty cc. portions of the solutions of 0.025 molar concentration, it is not necessary to convert the constant values to moles, grams, or p.p.m. for using them in practice.

Thus, the period of half life or the time required to decompose one half of the substance in question is independent of the initial concentration. The expression:

$$t = \frac{0.6923}{k}$$

makes it possible to calculate how long it will take to decompose or hydrate one half of the original concentration of the poly phosphate in question at a given temperature, knowing the value of the constant. The value for the constant at any temperature for any of the poly phosphates may be easily obtained from the plot of the log of the reaction rate constant against 1/T, and used in the calculation.

The rearranged expression for the reaction rate constant for a first order reaction is:

$$\log c = \log a - kt/2.303$$

where c is the amount of p.p.m. remaining after time t, and a is the initial concentration in p.p.m. of the particular poly phosphate.

By either of the last two expressions given, it is possible to calculate with the knowledge of the reaction rate constant, either the time required to decompose one half of the original concentration of poly phosphate, or to calculate how much of the original concentration of poly phosphate remains after a given interval of time.

The use of these data in practice where the poly phosphate is used in different applications is obvious. For instance, let us say that one of these phosphates is used as a detergent constituent. If it is used in water at elevated temperature it can be seen that the amount of active poly phosphate radical remaining will depend on the temperature and the time the given solution is in use. The data given make it possible to calculate the practical limits of additions of chemical treatment involving the phosphate.

If treatment is used in treating water supplies for various treatment controls, naturally the time required for its decomposition to any fraction

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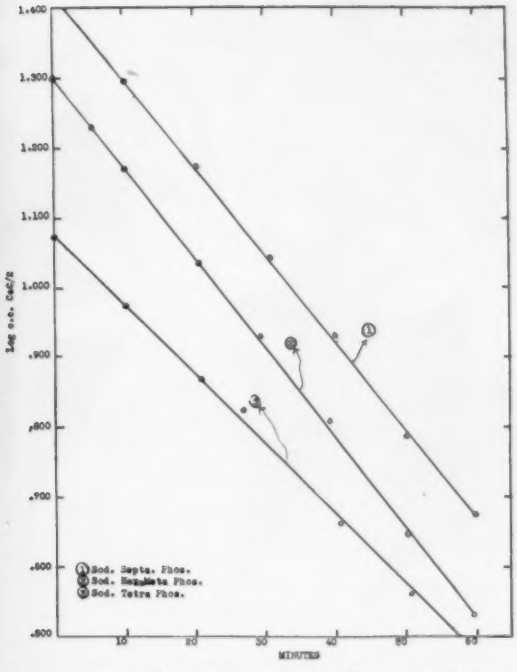

Fig. 3. Rates of hydration of poly phosphates at 100 deg. C.

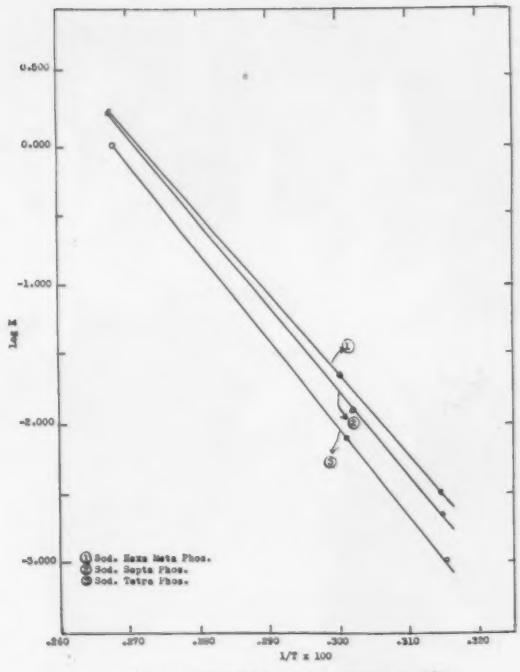

Fig. 4. Log reaction rate constant vs. 1/T

of the initial amounts used is important in maintaining the minimum amounts necessary for protection.

A comparison of all the poly phosphate substances as to their uses will depend on the particular use in question. If, for instance, one of these substances is to be used in detergent mixtures, both the ability of the substance to sequester calcium and magnesium salts and its stability over period of time at given temperatures are important factors. A direct comparison may be made from the results of the calcium chloride titrations on solutions of the poly phosphates.

If a lower phosphate has added properties, such as additional alkalinity equivalent as with tripolyphosphate, then that substance based on cost per pound may be more valuable for detergent use. On the other hand, when comparing these substances for other properties such as scale prevention and corrosion control in hot and cold water systems, or for threshold control in water works plants, etc., then the size of the apparent molecule may be the more important factor. If it is assumed it is the colloidal like properties of the large anion in combination with calcium which is responsible for the benefits to be derived from these substances, then the order of effectiveness should be in proportion to the size of the anion, or in the order: sodium septaphosphate, sodium hexametaphosphate, sodium tetraphosphate, etc.

The actual effects due to size of the molecules may be disproportionate to the ratios of the molecular weights, but these ratios give a starting basis for comparison, since after all they are purchased on the basis of cost per pound.

Thus, for all uses of these products, we have four factors to consider:

1. The alkalinity equivalent which these substances add to a given amount of water from a given weight of phosphate.

2. The amount of substance required to sequester the same amount of calcium ion.

3. The size of the anion in making possible certain colloidal effects when it is combined with calcium.

4. The percentage P_2O_5 of the product.

The data for making these comparisons is outlined in part in this paper.

WFO-42-B Amended

Use of fats and oils in soap for United States territories is included under domestic soap fat quota by an amendment to War Food Order 42-B (Amendment 10), effective July 1, 1946.

United States territories formerly were exempt from this quota. Because of the quota-exempt status, shipments of soap to the territories have exceeded normal requirements. As a corrective measure it was deemed advisable to include the territories in the domestic quota.

Fat and oil quotas remain the same as they were, 78 per cent for package and bar soap and 84 per cent for bulk soap. However, manufacturers may now include use of fats and oils in soaps for export to United States territories in figuring base period use.

To support claims for certain exempt uses of fats and oils in soaps, manufacturers must furnish an "End Use Certificate."

Copra Shipments Increased

During June, 43,977 long tons of copra left the Philippine Islands, of which 29,996 tons were consigned to the United States. This latter is expected to provide about 56 million pounds of coconut oil.

Approximately 119,000 long tons of copra were shipped to the United States during the first six months of this year out of a total of about 135,000 tons which left the Philippine Islands. This country was thus furnished with about 168 million pounds of coconut oil.

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by ARNOLD KRUCKMAN

THE general impression here, in informed quarters, is that the President will feel compelled to call back the Congress in special session in October. Privately, the majority of Government officials think the new OPA law will be found to be unworkable. The obscurities, contradictions, conflicts, are considered so confusing that it is assumed either the Congress must eventually decline to enact any law, and throw the problem open for solution by the national economy itself, without Government aid, or make another law which will simply revive *ALL* the powers of OPA, and authorize OPA to function by applying drastic controls for, say, a period of 6 months, after which term decontrol might be required as fast as supply balances demand.

PRESENT OPA LAW

The present law was hastily tinkered together during the last days of the final session by men and women who were more interested in getting away from the killing humidity of the Washington heat, in order to make their election campaigns back home, than to provide a law that would take care of the pressing economic needs. To be fair to Congress it is only reasonable to bear in mind they are only human, and that they were harassed by many distressing political problems. It is understandable why they were more impelled to consider the political problems than to give deep study to the nation's business troubles. All members of the House must stand for re-election, and at least 34 members of the Senate must run again this Fall. It costs money to conduct campaigns, especially these days when there is a multi-million dollars PAC-CIO campaign fund to combat. The average Congressional candidate must depend upon the smaller business man back home in his district to help pay the campaign expenses; and he must depend upon the voter to give him the majority of ballots.

In this campaign the incumbent candidate confronted the problem of making a law which would not raise the hackles of the potential financial supporter among the businessmen of his district; and he had to bear in mind that the consumer, the voter, was conducting buyers' strikes to emphasize that he wished to perpetuate OPA. On the horns of this dilemma the member of Congress quite logically produced the law which may mean all things to all men and women.

This left the real burden, however, to the Government officials who administer the business of OPA. Early in August literally none of the executives in the administrative pricing and enforcement sections of OPA have a clear idea of what the law means. In the Drug Section of OPA, such meager enforcement as survives, which touches the toiletries, perfumes, cosmetics, and allied interests of your industry, comes under the administrative supervision of H. H. Roeske. Mr. Roeske has been there for some time, but he is a new man in your field. The responsibility was thrust upon him together with a number of other lines in the drug field. He inherited the job because he is one of the few officials who had the hardihood to stay and face the music. Most of those who were in the earlier, and easier, phases of OPA have hurriedly left. It is the general thought in Washington that those who have remained are people of courage, because the administration of OPA regulations will increasingly be extremely unpopular, and will expose those who carry on to all kinds of unmerited criticism.

PRICE CONTROL

There is little in the way of price control left to harry your industry; but the regulations which flow out of this law will undoubtedly appear in the more or less immediate future. At present neither Mr. Roeske nor any one else can tell you with any degree of certainty what these regulations may be. Nor is this the time to put too much pressure upon Roeske and his associates to secure adjustments that seem essential.

Early in August Mr. Roeske, and other officials in the Drug Section, have gone into a huddle (after listening to a broad general outline of policy from the top brass), and they are valiantly trying to determine what the law means in the light of the vague policy definition indicated by their superiors. Roeske, and his associates, represent the starting point. They come closest to the industry level.

If you wish to get your ideas before OPA you should present your suggestions to Roeske through your Industry Advisory Committee. The law provides this means of approach for an industry which has problems. Mr. Roeske, however, urges earnestly that he and his associates would be much happier if the industry would wait until Roeske and his associates have an opportunity to clarify their own thoughts, and formulate interpretations which they may submit to higher levels of OPA.

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The OPA people, obviously, must arbitrarily choose the answers they make to the conflicting and debatable provisions of the law. In other words, the OPA people chiefly must determine what they think the law means in the light of their special understanding of an industry's background, and their familiarity with the machinery of OPA itself. When they have reached their conclusions they must put their formulae "in channels," which will bring the formulae to the economists, the lawyers, the sundry experts, and finally to the top brass itself. The highest officials naturally will either approve, or modify, or disapprove, the original formulae which have probably been further processed enroute. It is generally assumed here that this chain of processes will take from 30 to 60 days. Meanwhile, when there is doubt, pricing and other regulations will be fixed, pending permanent adjustments, at the level existing on June 30.

DEPT. OF AGRICULTURE

At this writing no one knows exactly what place the Department of Agriculture will have in the picture. It is assumed that policies, price and other yardsticks which affect essential oils, and other materials used by the industry, will be formulated by Victor Bushman, in the Department of Agriculture, while the actual detailed administration will continue to be carried out by Mr. Roeske, and his associates, in OPA. The Department of Agriculture apparently will be the boss over all materials which may be classified as having an agricultural origin, but the job of making the regulations work will still remain in OPA.

Those in the know tell their clients insistently it has never been more important to know exactly what a business regulation allows you to do, and what it forbids. The new OPA law has some booby traps. Most people think vaguely all meat and food products are exempt until Aug. 20, and then only come under control if the Decontrol Board says so. This would seem to liberalize controls over fats and oils, which vitally interest this industry. As a matter of fact most oils and fats used by the industry remain under control, apparently all those used in cosmetics and in soap.

Wool products, apparently including lanolin, come under a special pricing formula. Practically all processed foods, including juices, as well as syrups, sugar, cocoa, and a long list of similar products, remain under price control.

Briefly, the law extends OPA to June 30, 1947; maintains prices on the majority of industrial products as they existed industry-wide in 1940, plus any increased costs; industrial products in adequate supply on Dec. 31, 1946, may be de-controlled; price control may be restored if prices rise excessively; divides price control between OPA, Department of Agriculture, and the new three-man Decontrol Board. The Board is regarded as the boss. Its members are considered liberals.

One of its most pressing and immediate problems is to determine about those business people who, during the "25 uncontrolled days," greedily bought everything in sight at increased prices, and now find themselves loaded with stuff that can only be sold at prices which invite bankruptcy. Unless they can clearly justify all or part of their inventory, it is doubtful whether or not the Board will bail them out.

CONTROL ORDERS EFFECTIVE

Incidentally, it is wise for all parts of the economy to bear in mind control orders are still in effect under CPA by which both wholesale and retail inventories can be held to a 30 days "practical working minimum." These relics of war days are L-63 and L-219. They apply to *all* parts of the national economy. They have actually been applied at this time to several chemical products, to household equipment producers and sellers, to building materials and equipment, and to suppliers for farmers. However, the Aug. 15 deadline for compliance is supposed to apply to *all inventories*. It is worth keeping in range of a weather eye.

It is generally assumed enforcement of OPA regulations will be feeble. A huge number of the best industry people in OPA have gone, or are rapidly going. Their places are being taken by Government career people. The staff is dwindling for lack of adequate over-all funds. Penalties now apply only to the amount of the overcharge. The muddle of the law has already precipitated open violations, and is expected to cause many more business people to challenge interpretations, even legality. Lawyers already have reported they have advised clients to ignore some parts of the law. Some trade associations have counseled members to forget it.

EXPORT CONTROLS

Another doubtful phase is the future of export controls. There is off-record talk in responsible quarters that pressure from the British may cause the State Department to seek elimination of all or most export controls, in order that the British may spend the largest part of that $4,000,000,000 loan in this country. This would open the way for larger foreign disposal of such articles as compacts, lotions, lipsticks, creams, and similar cosmetics; and would assuredly increase the pressure for foreign distribution of such basic materials as cedarwood oil, dill oil, cedarleaf oil, wormwood oil, peppermint oil, spearmint oil, orange oil, and similar products.

The British, on the other hand, in recently discussing their Board of Trade Order No. 3, 1943, revealed the controls over domestic cosmetics, perfumes, and toiletries are unchanged, that exports are virtually mandatory if the producer in England wishes to sell a modicum of goods at home. Another order recently issued jointly by the British Board of Trade and our State Department holds our toiletries, cosmetics, and perfume imports into Britain down to a modest level related to pre-war transactions. The details of the allocations were given by the State Department to the Toiletries Association in New York for circulation among the industry.

Congressman Fritz Lanham, of Texas, who long fought for a thorough revision of the law providing for protection of trade-marks, leaves the Congress voluntarily at the end of this session, but goes with the consciousness that he accomplished his purpose. Public Law 489 was signed by the President on July 5. Lanham is an attractive personality, and his going is greatly regretted in the Capital. It is not widely known that he is one of the most skillful magicians in America. He is an amateur, but he is credited with far greater adeptness than many professionals. Lanham is extremely popular with the veterans in the hospitals in and around the Capital. There has scarcely been a Sunday or a holiday when

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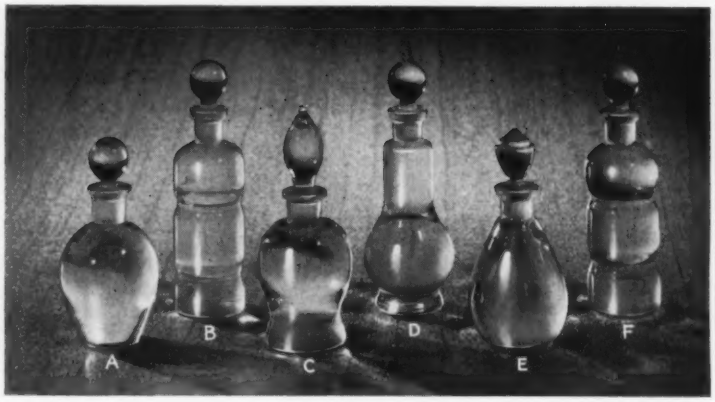

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TRADEMARK PROTECTION

Under the new law no one can contest your title to a trademark after five years. But if you do not register your trademark in the Patent Office it may mean you lose all your rights to the trademark, and you would have difficulty in establishing the trademark in new territory. It works this way: You do business in New York; you register your trademark in the Patent Office. If at the end of five years no one has challenged your title to the trademark it is your property, to use where and how you will, or to use simply in the most limited area. But no one else anywhere may use it. On the other hand, suppose you make only a limited use. And before you make your filing with the Patent Office the trademark was used in Los Angeles, in good faith. There is nothing to disturb the continued use of the trademark in that area. But if the Los Angeles people do not register the trademark with the Patent Office and you have filed with the Patent Office you may stop the Los Angeles people from extending the use of the trademark into other areas.

Title I of the new Law covers the details of registration of a trademark in the Patent Office, and prohibits certain uses, such as the flag of the United States, the coat of arms or any other insignia, as well as those of any State or municipality, or foreign nation. Signatures or photos or names of living persons may not be used without their consent; nor may the portrait of a dead President be used without the consent of his widow.

Service marks also may now be registered, and receive the same protection as trademarks. Title II requires the Patent Office to establish a supplemental register for the registration of domestic and foreign trademarks which cannot be registered under the terms of Title I. Titles III, IV, V, VI, implement the machinery of the trademark law; Title VII forbids importation of goods bearing infringing marks or names; VIII forbids various falsifications, and Title IX covers international conventions. Title X defines the terms and phrases used in the law, as, for instance, a service mark is defined as a "mark used in the sale or advertising of services to identify the services of one person and distinguish them from the services of others and includes without limitation the marks, names, symbols, titles, designations, slogans, character names, and distinctive features of radio or other advertising used in commerce." Title XI repeals all previous Acts.

NEW TRADEMARK LAW

The new trademark law becomes effective July 5, 1947. One of its most novel features is the right to register distinctive designs as either a part or as the complete mark in itself. This means that a perfume bottle of unique shape or a combination of shape and color; or a cosmetic jar of novel finish or design; or a box or container for powders with distinctive lines and shape, may be registered as part or as all the trademark with suitable type and pictorial arrangement. The new law also permits renewal of the registration every 20 years.

In effect the trademark becomes the protected property of the owner in perpetuity if he registers, and if he does not practice deception, fraud, or transgresses good taste and decency. The new law also restricts the authority of the courts in entertaining pleas against similar devices or marks, if the trademarks obviously are not intended to deceive, or trespass upon the designs of another trademark.

As a matter of fact, the administration of the new law was the cause of a sharp collision between the Department of Justice and the Federal Trade Commission. The Department of Justice held that enforcement of the law is the function of the legal arm of the Government. The friends of the Federal Trade Commission held that its administration is properly the function of FTC since this agency is concerned solely with enforcement of laws designed to uphold fairness and decency in trade and business relations. It was brought out that the FTC already has a well established mandate to censor and approve the labels placed on various kinds of merchandise, setting forth their properties, composition, and uses. The Federal Trade Commission itself was not a party to the struggle for administrative jurisdiction.

The decision was finally made by Congressman Lanham and his associates in order to remove an obstacle which threatened again to sidetrack its enactment. Lanham and his followers would have preferred to leave the enforcement with the Patent Office and the Department of Justice. The final designation of FTC was almost as much a surprise to FTC as it was to outsiders.

The deep cut in funds for the Department of Commerce has reduced some of the functions of interest to your industry. But it is not yet clear who is affected, and to what extent the changes extend over the various sections. Miss Emma D. Schutrumpf no longer assembles and prepares the monthly summary on essential oils and other materials of interest to the industry. She has been transferred to other work. The preparation is temporarily in charge of William P. Burke.

It is not yet clear where the dividing line will be between the domestic and foreign phases of the Section charged with the business of perfumes, toiletries, cosmetics, essential oils, and similar materials. In CPA, Henry Heine, who was in charge of the materials of interest to the industry in WPB for the duration of the war, resigned Aug. 1, and returned to his scholastic work in New Jersey. Heine is succeeded by Dr. Edward O. Haenni, who came from the Food and Drug Administration in 1944 to WPB as Chief of the Solvents Unit in the Alcohol Branch of WPB.

Alcohol, incidentally, continues very scarce, but there does not appear to be any danger of further controls. Tin is reported still tight.

Haiti is reported by the Department of Commerce as a very live market for dentifrices, toilet and shaving soap. Paste dentifrices are most popular. Cuba finally sold us the sugar crops for 1946 and 1947, after Secretary of Agriculture flew down to Havana to complete the deal in person. We paid 3.675c. a pound. If prices here go up 2 per cent we will pay them more.

Those who have reason to go to France, Belgium, Luxembourg, Czechoslovakia and Norway, "on essential business," may obtain coupons for motor gasoline by applying to the Department of State and the European Central Inland Transport Organization, known as ECITO. The applicants may obtain a maximum of 132 gallons, which is estimated at 2,000 miles travel.

Selected Book List

INTRODUCTION TO EMULSIONS. By George M. Sutheim. As emulsions enter many new fields of modern industry, this new book, which gives ABC of emulsions, is timely and useful. Discusses principles, properties, methods of preparation and practical applications of emulsions. Extensive bibliography. Alphabetical list emulsifying agents. 265 pages . . . $4.75 postpaid.

DEVELOPING MARKETABLE PRODUCTS AND THEIR PACKAGINGS. By Ben Nash. This book brings you the first organized treatment of the new essential business function which takes the guesswork out of measuring public reception—and assures your product the sales that are expected. It presents the author's well-known "presearch" technique, and considers every aspect of marketing, performance, physical form and production in their relation to the sales appeal of the product. 404 pages . . . $6.00 postpaid.

PRINCIPLES & PRACTICES OF BEAUTY CULTURE. By Florence Wall . . . $6.00 postpaid.

CONDENSED CHEMICAL DICTIONARY. Latest edition. Compiled and edited by Staff of the Chemical Engineering Catalog. 551 pages. Thumb index. A shortcut to specific information concerning 12,000 chemicals and raw materials. Designed for the practical use of all who are required to know the properties and industrial uses of chemical products . . . $12.00 postpaid.

COMMERCIAL METHODS OF ANALYSIS. By Foster Dee Snell & Frank M. Biffen. Just published. This valuable book covers practical analysis of typical products and gives procedures and calculations for hundreds of determinations— plus many pointers on general approach to analysis of unknown samples. Special emphasis is laid on time-saving methods in line with economic standards of the efficient commercial laboratory. Of constant use as quick reference to experienced chemists—invaluable to new chemists. 753 pages. 152 illustrations . . . $6.50 postpaid.

DRUG & SPECIALTY FORMULAS. By Emil J. Belanger. Tested, modern, practical formulas for human and veterinary remedies; cosmetics; food products; beverages; household, commercial & miscellaneous specialties. A digest of the new Federal Food, Drug & Cosmetic Act; suggestions for labeling drugs included. Little scientific knowledge or equipment needed for most formulas . . . $6.00 postpaid.

THE LAW OF FOODS, DRUGS & COSMETICS. By Harry A. Toulmin, Jr., J.D., Litt. D., LL.D. With introduction by Hon. Paul V. McNutt, former Federal Security Administrator. All manufacturers need a copy of this book. A practical working manual. Contains official government regulations. FDA trade correspondence rulings, official forms and charts. Gives thorough analysis of the decisions relating to: False and Misleading Advertising, Unfair Competition and Misbranding. Informative Labeling. One large volume, 1460 pages including first supplement . . . $17.50 postpaid (will be kept up-to-date with pocket supplements for small additional charge).

PERFUMES, COSMETICS & SOAPS. by Wm. A. Poucher.

Vol. I	(Dictionary of Raw Materials)	$8.00	postpaid
Vol. II	(Production of Perfumes)	8.00	"
Vol. III	(Treatise on Cosmetics)	7.00	"

AMERICAN SOAP MAKER'S GUIDE. By P. B. Meerbott & I. V. Stanley Stanislaus. Treatise on art and science of manufacture of soap, candles and allied toilet preparations. Third, completely revised, edition of this exhaustive book—covers all new developments. 700 pages. 105 illustrations . . . $7.50 postpaid.

HENLEY'S 20TH CENTURY BOOK OF 10,000 FORMULAS, PROCESSES & TRADE SECRETS. New 1944 revised and enlarged edition. A wealth of practical, accurate knowledge and guidance. Formulas for almost everything imaginable. New ways of doing things. Technical processes. It has helped thousands make more from their present businesses and professions. Over 900 pages . . . $4.00 postpaid.

COSMETICS AND HOW TO MAKE THEM. By Robert Bushby. This simply-written practical guide for beauty specialists, hairdressers and all others who are concerned with the preparation of face powders, vanishing creams, nail polishes, rouges, lipsticks and other cosmetics is a useful handbook for those who have had no previous knowledge of chemistry. The book contains easy to follow formulas and a great many recipes . . . $2.75 postpaid.

COSMETIC DERMATOLOGY. By Herman Goodman. 54 chapters covering the field from acne to vitamins and hormones . . . $7.00 postpaid.

For books on perfume and allied industries consult us. Send remittance with your order. Foreign postage extra

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NEW PRODUCTS AND PROCESSES

New Rodenticide

John Powell & Co., Inc., 1 Park Ave., New York, N. Y., has introduced Powco Brand Anti (alpha naphthyl thiourea), which is said to be an effective highly-toxic rodenticide which is extremely acceptable to rats.

The product is a fine, greyish powder, insoluble in water and non-irritating to the skin. It is said to be stable, not affected by heat, and does not deteriorate with long storage.

New Stabilizer

The Kraft Food Co. is manufacturing a new stabilizer made from carageenin, a gelatinous extract of edible Irish moss, under the trade name "Kraystay." Although it is a comparatively new product, Kraystay already has proved its value as a suspending agent for chocolate milk drinks, as a stabilizer and emulsifier for cream lotions and hand lotions, and as a binder for tooth paste and other pharmaceuticals.

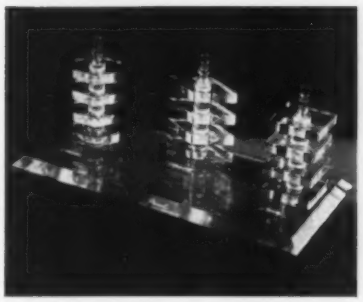
The company has offered to experiment with the stabilizer in products where questions of emulsification, suspension, gelling, thickening and stabilization occur. Being tasteless, odorless and colorless, the product does not affect the flavor or color of a product.

Corrosion Resistant Pail

Allcraft Manufacturing Co. is offering pails all welded of solid Inconel with Monel chime, ears and handle. Containing approximately 80 per cent nickel and 14 per cent chrome, Inconel is highly resistant to corrosive materials and preserves product purity. Pails are available in 12, 14, 16 and 20 quart sizes.

Plastic and Glass Perfume Containers

The artistic effects that may be secured by a combination of crystal clear plastic pedestals and glass vials are emphasized in some recent creations of Glass Industries, Inc., 10 W. 33rd St., New York, N. Y. One of these is the illustrated pedestal in plastic lucite into which are fitted glass vials created for one of its customers, Primel of Hollywood.

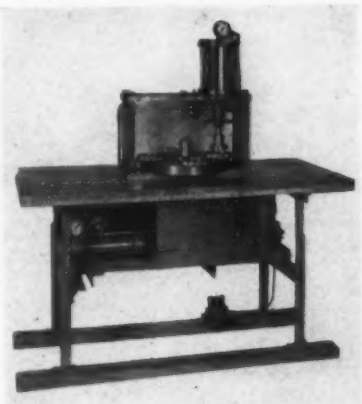


New plastic lucite pedestal

Three different shapes of plastic holders — hexagonal, diamond and square—are firmly attached to the plastic base so that the three holders into which are slipped three different perfumes in glass vials are always neat and in place. The set unquestionably adorns the dressing table. Full details about these and other novel and attractive combinations of plastics and glass in containers for perfumes created by Glass Industries, Inc., will be sent by that company on request.

Cake Make-up Machine

The Dependable Compressor and Machine Co. has developed a new rotary cake make-up machine. It has four female and one male die. The female die slides through rotary motion, alternating so that each die comes into position for compressing at the appropriate time.



Rotary cake make-up machine

New Nail Lacquer

The Fleetwood Laboratories, Inc., of Mount Vernon, N. Y., which has recently developed the hydrolytic process for the manufacture of lipsticks, rouge and powders, is now producing a nail lacquer utilizing two new chemical compounds.

A new plasticizer, Di(p-terteary butylphenyl) mono-(5-tertearylentyl-2-xenyl) -phosphate, and a new resin, phenolic methacrylate have been incorporated into the nail lacquer formulation.

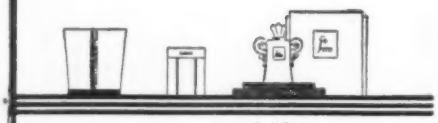
The plasticizer is said to impart a brilliant lustre to the nail lacquer and it is added, the resin forms a strong durable film with excellent adhesiveness.

Field tests, the company states, have indicated that this nail lacquer lasted 46 per cent longer as compared with eight leading brands on the market. Shelf tests have also demonstrated this formulation to have a minimum of color sediment.

The company has also developed the following manicure products: a cream nail polish remover which is reported to be odorless; a liquid nail polish remover also odorless. Product NAV-318, a soluble resin and plastic compound used to minimize the chipping of nail lacquer.

New Catalogs

A ten-page booklet describing sunscreening agents, with charts of various tanning and sunburning rays, including formulas to meet the requirements of suitable suntan preparations, has been issued by Givaudan-Delawanna, Inc., 330 West 42nd St., New York, N. Y. Instructions for preparing the formulas are included.



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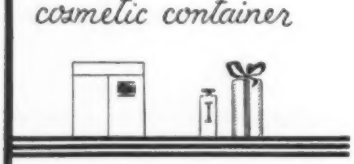

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AMONG OUR FRIENDS

Henri Robert, accompanied by Mrs. Robert, has returned from an airplane trip to Paris, Grasse and Cannes, France where he spent five weeks completing the organization of the natural floral products house of Les Fils de Joseph Robert, Paris, and making final arrangements for the representation in the United States of Laboratories Synarome, Asnieres, near Paris, makers of aromatic specialties, by Henri Robert, Inc., 39 W. 60th St., New York, N. Y.

Henri Robert

This dual representation in the United States, Mr. Robert points out, not only brings together two old perfumers' families, but with his own background makes it possible to supply the American market with natural floral products and aromatic specialties which are very modern and especially developed to meet the needs of American perfumers, cosmetic, soap and other manufacturers.

Laboratories Synarome has been engaged in the creation and manufacture of aromatic specialties for about a quarter of a century under the direction of Hubert Fraysse. Their ambrarome, animalis and other modern specialties have been in use in the most successful perfumes of the past decade. Hubert's brothers, Georges and Andre Fraysse are like the father, Claude Fraysse, outstanding personalities among the perfumers.

Furthermore, Claude Fraysse was a pioneer in the aromatic industry since he was among the first to manufacture many aromatic chemicals close to the end of the past century.

Henri Robert, and his brother Victor, who also spent all his life in the essential oil industry, constitute the firm of Les Fils de Joseph Robert. They claim to be specialists in floral products from Grasse: concretes and absolutes manufactured according to the principles of the father, Joseph Robert. The late Joseph Robert was a pioneer in the production of natural floral products. He was associated for thirty years with one of the largest houses in Grasse and prior to that with Massignon Brothers in Cannes, where he developed, in 1890, the volatile solvent extraction method for the production of concretes and absolutes, jasmin, rose, etc.

Henri Robert was born in Grasse. Living near the gardens and the factories of Grasse, as a child, he became fascinated by the extraction of floral oils. Under the supervision of his father, he and his brother, Victor, practiced the various methods of extraction and they studied the development of perfumes. After World War I, Henri Robert decided to devote his whole life to the creation of perfumes and went to Paris where he was associated with some of the leading French firms. After being again discharged in World War II, he came to the United States and in January, 1945, he established his own company in New York, utilizing his traditional French training and experience to study and develop American products. Collaborating with him is Louis Matigot.

Mr. Robert is optimistic of the outlook for the perfume and cosmetic industry in the United States. He feels that not only will the consumption of perfumes and toiletries increase, but as he found in France a serious trend to come back to the highest quality, he thinks there will be a more marked demand in America for quality products too.

John D. Penick has been made a director of S. B. Penick & Co., New York, N. Y. He is a veteran of World War II.

Dr. Paul Jellinek, who is known to readers of THE AMERICAN PERFUMER for his technical contributions before the war, arrived early in July from Holland for a stay of six months in the United States. It is Mr. Jellinek's first vacation in six years.

Dr. and Mrs. Victor Fourman returned recently from an extended business and pleasure trip to Canada. Dr. Fourman, of Syntomatic Corp., New York, N. Y., reports that he had the pleasure of visiting with many friends and business associates.

Arnold L. van Ameringen, president of van Ameringen-Haebler, Inc., New York, N. Y., flew to Paris the beginning of this month for a month's visit with associates and principals in the perfume and flower oil industries of France, Holland and England. Mr. van Ameringen will be particularly interested to observe the progress effected in the rehabilitation of the industry since his last visit at the close of hostilities in Europe last year. Accompanying Mr. van Ameringen on his tour will be Dr. James H. McClumphy, vice-president in charge of the Flavor Department of the organization. Dr. McClumphy plans to investigate new European developments in the flavoring field. Both Mr. van Ameringen and Dr. McClumphy plan to return early in September.

A. L. van Ameringen

Louis Theis has been elected president of J. L. Hopkins & Co., New York, N. Y., following the death of J. L. Hopkins, founder. Previous to his election, Mr. Theis had been associated with the company for forty-seven years, finally as vice-president. Other company officers are: E. I. Hopkins, vice-president; M. A. Carpenter, treasurer; and William C. Gehring, secretary.

E. C. Phillips, until recently a colonel in the U. S. Army Air Forces, has been made manager of the newly created St. Louis-Kansas City Division of U. S. Industrial Chemicals, Inc., New York, N. Y. Mr. Phillips was in the sales department before the war. He will make his headquarters in the company's St. Louis office, at 1600 Clark Ave. J. E. Montgomery remains in charge of the St. Louis sales office and warehouse facilities, and Paul Dearing is in charge of the Kansas City sales office and warehouse now located at 1104 Union Ave.

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J. K. Stevenson, manager of the Detroit office of Givaudan-Delawanna, Inc., New York, N. Y., has been released from active service in the U. S. Army Air Forces and has returned to his position with the Givaudan organization. At the time of his release, he held the rank of Major. He entered the military service in April, 1942, and was assigned to the Air Technical Service Command, serving until 1945 with the ATSC. In the early part of 1945, Mr. Stevenson was assigned to the U. S. Strategic Bombing Survey. He was awarded the Bronze Star Medal for meritorious service.

J. K. Stevenson

Thomas Cifelli, Jr., patent attorney for Givaudan-Delawanna, Inc., New York, N. Y., was recently elected president of the New Jersey Patent Law Assn., a new organization of which he was one of the founders.

Lester D. Berger, Jr., has been appointed manager of a new Seattle office of Carbide and Carbon Chemicals Corp., New York, N. Y. His office is located at 2901 First Ave. South. Mr. Berger has been with the organization since 1940, and before the war, was located at the company's main office. He served in the Navy during the war as a Lieutenant Commander with the South Atlantic Fleet.

J. Hilary Herchelroth, 369 Third Ave., New York, N. Y., has been appointed exclusive representative for this hemisphere by Cresp-Martinez, Grasse, France. The firm has been in operation since 1782. Mr. Herchelroth has also been elected president of Lancry de Paris, Inc., New York, N. Y. The parent firm, in Paris, was established in 1926. He is flying to France Sept. 6, to remain about four weeks to study the current situation in that country. His interest in perfumes began sixteen years ago when he began compounding in his wife's kitchen as a hobby. The hobby lead to the formation of Herco Laboratories, which specialized in the manufacture of perfumes in bulk and of essential oil compounds. Mr. Herchelroth sold his interest in the company last year.

J. Hilary Herchelroth

William E. Palmer has been appointed division manager of Lever Brothers Co., Cambridge, Mass., in the New York area. Mr. Palmer, who is 33, attended Boston College and in 1936 joined Lever Brothers at its home office. Later he transferred to the field force and advanced steadily. Most recently he was field supervisor in New York, N. Y.

William J. Terrell has joined the staff of the Toilet Goods Assn., Inc., New York, N. Y., as assistant to S. L. Mayham, executive vice-president. Mr. Terrell graduated from Oregon State University in Business Administration. He served with the Third Army during the war as a combat infantry officer, wears the Purple Heart and holds the Bronze Star and the Silver Star for conspicuous gallantry in action. He is now a Captain in the Army Reserve Corps.

William J. Terrell

Michael A. McManus has been elected treasurer of Lever Brothers Co., Cambridge, Mass. In this post, Mr. McManus has succeeded Arthur P. MacIntyre, recently elected vice-president in charge of finance. A native of Cambridge, and a graduate of Boston University, Mr. McManus joined Lever Brothers 25 years ago as an invoice clerk. Since 1936 he has been assistant treasurer of the company.

Rene H. Bourguet has joined the staff of Lautier Fils, Inc., New York, N. Y. Mr. Bourguet was born in London, and has traveled extensively on the Continent. Although born abroad, he obtained his final education in this country. He received a degree in chemistry at the Massachusetts Institute of Technology in 1942.

Stanley Sapery who has been identified with the cosmetic, pharmaceutical and allied industries for over a dozen years as a representative of the Victor Metal Products Corp. of which for the past year he has been sales manager, has resigned to open his own office at 11 E. 44th St., New York, N. Y., as a manufacturers' representative. He will represent Victor Metal Products Corp. on a number of accounts and plans also to represent other firms so as to give a complete packaging service, specializing in plastics. Due to his broad experience in plastics, particularly during the war when he was unofficial advisor on plastics for a number of war plants and government agencies. Mr. Sapery feels that he is especially qualified to assist the trade secure better plastic applications. With his past and present connection with Victor which handles both metal and plastic products, Mr. Sapery points out that his experience enables him to evaluate properly cases where plastics may be depended upon to be the best solution of a packaging problem.

Stanley Sapery

Harold Noble has been made a vice-president of S. B. Penick & Co., New York, N. Y. He is in charge of the insecticide division.

John J. Casey, manager of the Implement Division of Revlon Products Corp., New York, N. Y., has been appointed general manager of Revlon's three cutlery plants, including the newly acquired Graef & Schmidt plant at Irvington, N. J. The Graef & Schmidt property was seized Jan. 27, 1943, by the Alien Property Custodian under the authority of trading with the enemy act, and acquired by Revlon for $330,000. The property consists of a two-story building.

John J. Casey

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NEWS and EVENTS

Louisiana Permits Sale of Hormone Creams

The ruling which prohibited the sale of hormone creams in the State of Louisiana has been revoked, and a new ruling is now in force which permits the sale of estrogenic hormone creams when they are properly labeled.

The new ruling reads: "No cosmetic or beauty preparation containing as one of its ingredients estrogenic hormone, or any of its chemical derivatives, or any synthetic chemical product possessing properties similar to those of estrogenic hormone, may be manufactured, processed, packed, sold or distributed in Louisiana unless its label bears adequate directions for use and a statement of the quantity in units of such ingredient contained in each ounce of such product."

Price Control Again in Effect

With the reenactment of the OPA law products of the toilet goods industry are again under control, and subject to MPR393.

Newspaper Cosmetic Advertising Gains Over Last Year

According to the Bureau of Advertising of the American Newspaper Publishers Assn., national advertising of cosmetics for 1945 increased $3,414,000 over the preceding year to $26,044,000. Expenditures for toiletries advertising are exceeded only by the grocery industry and by alcoholic beverages.

Tax Collections Indicate Cosmetic Sales Increase

An increase of $9,118,621 in tax collections on cosmetic sales for the fiscal year ending May 31, 1946, indicates an increase in sales of almost 20 per cent over the preceding year.

The total revenue received for the sale of toilet preparations for the year amounted to $88,947,929, as compared with $79,829,308 for the preceding year.

Benson Storfer Sees Improvement in France

Benson Storfer, president of Parfums Corday, Inc., New York, N. Y., and his son, Herbert F. Storfer, returned to New York by plane last month after a short trip on the Continent. In addition to visiting the factory in Suresnes, France, they spent time in Grasse visiting several of the important distilleries and essential oil houses. They also visited several of the important houses in Geneva, Switzerland.

Benson Storfer

As Mr. Storfer was one of the first to visit France last year, he is able to make a comparison and note a marked improvement in agriculture, industry and particularly in the perfume field. France is gradually getting back on its feet.

The present regime in France is intent upon exporting almost everything that the French people produce in order to obtain dollar exchange. Therefore, there has been pressure brought to bear through export licenses for the French perfumer to export perfumes in completed packages. Furthermore, the U. S. Customs has favored this plan by permitting the duty on finished packages to be the same as for bulk perfumes shipped out of France.

While there has been a marked improvement in the bottle and box industries in France, top grade raw materials are still very limited, and the new crops will not be as large as even the poor crops of 1945, with prices at least double the previous year's prices.

Limited Toiletries Imports Permitted by England

Control of imports of certain items, including tooth paste and powder, lipstick and rouge, face powder, petroleum jelly preparations, hair tonic and Brilliantine, has been relaxed by the British Government to permit the importation of these goods in the proportion of 20 per cent of the average annual shipments of individual producers during the years 1936, 1937 and 1938.

Interested manufacturers should list their exports to England for the years 1936, 1937 and 1938 by quantity and value with: Requirements and Supply Branch, Office of International Trade, Department of Commerce, Washington 25, D. C.

Date of TGA Scientific Section Meeting Announced

The next meeting of the Scientific Section of the Toilet Goods Assn. will be held Dec. 5, at the Waldorf-Astoria Hotel, New York, N. Y.

American Consulate at Aden Requests Toiletry Information

The American Consulate at Aden, Arabia, has requested that it be sent illustrated price lists and catalogs of toilet preparations.

Use of Home Permanent Wave Kits Increases

The latest Fawcett Beauty Reader Forum show that the use of home permanent wave kits has increased by 7 per cent. The survey shows that in 1945, 23.2 per cent of those interviewed used home kits, while in 1946 this number had increased to 30.1 per cent.

Loomis Talc Control Acquired by Markham

A controlling interest in the W. H. Loomis Talc Corp., Gouverneur, N. Y., has been acquired by John Markham. The company owns and operates three talc mines.

beeswax . . .

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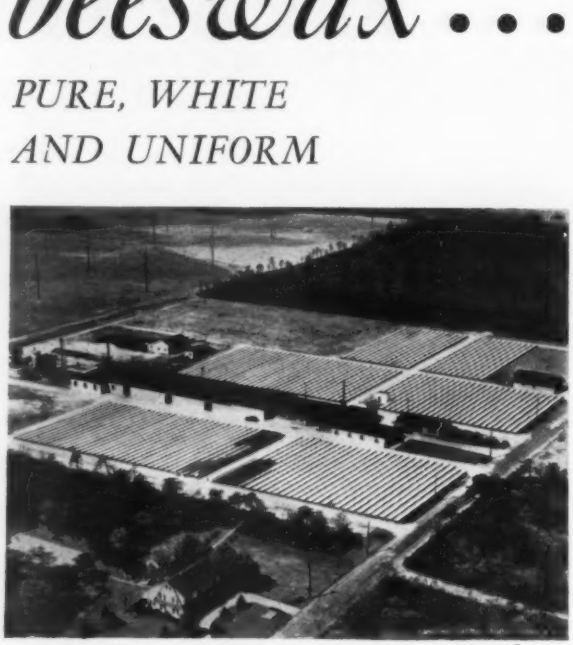

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Rise in Natural Floral Prices Likely, Says Henry de Boutiny

Henry de Boutiny, director of the essential oil house of Jean Niel, Grasse, France, arrived with Mrs. de Boutiny on the Uruguay June 29 for a month's visit in the United States. While here Mr. de Boutiny spent much of his time at the American branch of the company, Jean Niel, Inc., New York, N. Y., of which Henry Retailliau is president and Robert A. Luthy, vice president. He also made trips to Washington and other cities in the East.

Mr. de Boutiny was overseeing his company's orange orchards and geranium plantations in Morocco when the Americans landed for the invasion. He served as a lieutenant in the field artillery of the French army in Morocco. In addition to fighting in Tunisia he also served in Italy, southern France and Germany. He continued in the service in Germany until a year ago when he received his discharge. In recognition of his service he was awarded the coveted Croix de Guerre with three battle stars.

Concluding three years with the army he returned to Grasse to resume the direction of the parent company, which he and his two brothers control. The factory suffered no damage during the war nor were the Moroccan plantations affected. Shortages of fuel, solvents and transportation have been the chief problems but generally conditions, though still unsettled, are improving. Research was carried on during the war and as a result some new and interesting products will be offered in the near future.

There is a great scarcity of jasmin flowers and the rose crop is about half that of the normal crop, due to almost continuous rain in May. As a consequence of poor crops, prices for natural floral products may be expected to advance over the next few months. Mr. de Boutiny expressed gratification over the steady progress made by the American company and felt that the cosmetic, flavor and allied industries in the United States will enjoy much prosperity and growth in the coming years. He returned to France by airplane early in August.

H. de Boutiny and H. Retailliau

NBBMA Schedules November Convention

The National Beauty and Barber Manufacturers' Assn. will hold its 1946 convention at the Palmer House in Chicago, Nov. 15 and 16.

M. K. Breslauer is chairman of the committee arranging for the convention. He is assisted by Joseph M. Byrne, Charles Kutill and John R. Thompson.

Others on the convention committee are: Columbus Behan, P. R. Casey, L. D. Franz, Harry Hagler, Frank Rosendahl, Ira Wilson, Harold Bertrand, Paul Mulvaney, A. M. Arthur, Al Petronella, George Tugwood, C. W. Godefroy, Ruth Lovke, Marie Callahan, Hazel Kozlay, Lester Anderson, A. L. Bender, I. R. Blumenthal and William Veneman.

The complete program of events will be released at a later date.

John Powell Celebrates Anniversary

John Powell & Co., New York, N. Y., manufacturers of basic raw materials for the insecticide industry, celebrated its 23rd anniversary the first week in July.

The Powell Co., a pioneer in the insecticide field, had its beginning in a small establishment in downtown New York. As a result of a policy of devoting its entire manufacturing efforts exclusively to insecticides and related products, the company now holds the position of being one of the largest in the industry today. The Powell biological control laboratory is said to be one of the most modern and up-to-date setups of its kind in the country.

Gloria Vanderbilt, president of the Gloria Vanderbilt Corp., New York, N. Y., with Maurice Chalom, designer of the salon and the packaging of the line, at the opening party which was given to introduce her perfumes to the press.

Gloria Vanderbilt Launches Cosmetics

Gloria Vanderbilt launched a new cosmetics firm last month when she introduced a line consisting of three types of cold cream, a skin lotion, a choice of two foundations, hand lotion, rouge and perfume. An after shave lotion and a cologne for men were announced. The general color scheme of the styling of the line is two blues, pale for the background. Crests and the initials G.V. are used generously. The name of the perfume, Diamant Bleu, is also carried out with the remainder of the line.

Showrooms, for the wholesale trade, are located at 15 East 60th St., New York, N. Y. Albert M. Behrens has been made sales and advertising manager. He was previously associated with Elizabeth Arden as advertising manager.

Maxim Appointed Sales Agent For Aldehydes C-8, C-9 and C-10

The Maxim Chemical Co., New York, N. Y., was recently appointed exclusive sales agent for Organic Laboratories, North Bergen, N. J., and is making available to usual consuming trades aldehydes C-8, C-9 and C-10. The relatively small production of C-8 and C-10 is being expanded to meet the demand. Production of C-9, an entirely different synthetic product, is to start shortly and commercial quantities will be available within a few weeks.

Flavaroma Laboratories Announces Expansion

Increased business has caused Flavaroma Laboratories, Inc., Chicago, Ill., to move to larger quarters at 3405-07 Archer Ave. Leon Ganford is in charge of operations of the plant and the Chicago office.

At the same time, Carl F. Weibes, president, with headquarters at 415 Greenwich St., New York, N. Y., has announced four new sales appointments to the New York staff. They are: Southeastern territory, Anderson, Stokes Co., 901 William Oliver Bldg., Atlanta, Ga.; New England territory, Bernard E. Blake, Newton, Mass.; Missouri, Reichardt Brokerage Co., 406 Market St., St. Louis, Mo.; and Norway and Sweden, Jansen & Gunderson, Oslo, Norway.

Demand Increases for "Tender Age" Line

Eight items in the "Tender Age" line, introduced by the Nyal Co., Detroit, Mich., for children under the 'teen-age group are now in national distribution, and according to E. P. Matthiesen, president, the list should eventually increase to about twenty.

Sales of the eight now being offered have doubled each month since they first became available, it is reported.

Control of Mary Chess Changes Hands

The controlling interest in Mary Chess, Inc., New York, N. Y., has been purchased by Saunders P. Jones, it was announced last month. Mrs. Avery Robinson, founder and former president, continues to own an interest in the company. Other new officers of the company are Robert P. Gibb and Byron C. Wagner. Helen Blake has been appointed sales manager.

Saunders P. Jones

In 1919, Mr. Jones organized the Jones-Dabney Co., Louisville, Ky., to manufacture varnish, enamels, lacquers, etc., and occupied the position of president until the company was sold.

He became president of the American Central Manufacturing Co., Connersville, Ind., in 1941. During the war, this firm turned out parts for the war effort, and is currently making refrigerators, bodies for farm jeeps, kitchen cabinets and sinks.

Mr. Gibb was Washington representative of Aviation Corp. (the parent company of American Central) from 1941 to 1945, and subsequently was transferred to the sales department of American Central. Mr. Wagner was formerly assistant general manager of American Central. Prior to that, he had spent thirteen years with the General Electric Co.

Mr. Jones has announced that he is launching a program to increase the number of outlets carrying the Mary Chess line. The firm has just introduced its new perfume "Song."

Tie Manufacturer To Enter Men's Toiletries

Beau Brummell, Inc., Cincinnati Ohio, manufacturer of men's ties, is to enter the men's toiletries field this Fall. Talcum deodorant, after shave lotion, hair tonic and cologne are to be sold under the firm name.

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Florasynth Laboratories (Canada) Ltd. Representation Unchanged

Florasynth Laboratories (Canada) Ltd., Montreal, Canada, will continue to be represented as heretofore in the British Columbia territory by the Arthur Irish Co., Ltd., Vancouver, B. C. The company's business in Canada continues without change with the same representation at all important points from Halifax to Vancouver and with the head office in Montreal, according to a statement by J. Lewis, managing director. Newly elected officers are: William Lakritz, president; David Lakritz, vice president; Joseph Fein, treasurer; Charles P. Kramer, secretary, and Mr. Lewis, managing director. Under arrangement, another newly established firm will not operate in the British Columbia territory, Mr. Lewis reports.

Givaudan-Delawanna Veterans Record

Sixty-one employees of Givaudan-Delawanna, Inc., New York, N. Y., who served in the armed forces have returned to their jobs. Three employees were killed in action during the war, and eighteen are still in service.

An additional twenty-two veterans who were not employees of the company before the war have been given jobs. Givaudan veterans fought in every theatre of the war and in all branches of the armed services.

Chemical Salesmen's Assn. Hold Golf Meet Despite Rain

Despite what many felt to be the worst rain storm of the year, more than 120 attended the Chemical Salesmen's Assn. golf outing held at the Winged Foot Golf Club, Mamaroneck, N. Y., on July 24. Some 85 diehards disregarded the rain and went around the course.

Prize winners were: Jack Turner, low net, third flight; L. Brennesholtz, low net, second flight; Charles Alexander, members kickers; Paul Hiller, low gross, third flight; Harry Kaufman, guest kickers; H. R. Miller, longest drive; William B. Mullen, members kickers; J. C. Abeles, low net, first flight; H. Reinhardt, guest low net; John Nicholson, guest low gross; Charles W. Frost, low gross, second flight; J. W. Atherton, guest kickers; Richard Malmstrom, guest kickers; R. C. Quartrop, members kickers; Russell F. Dixon, nearest to pin; George Uhe, members kickers; Tom Morgan, low gross, first flight; C. W. French, members kickers; W. L. Collins, members high gross and Harold Stevens, door prize.

Prince Artchil Gourielli, head of Gourielli, Inc., New York, N. Y., and president of the Georgian Association of the United States of America, will sail this Fall for Europe to study new developments in the men's cosmetic field. Prince Gourielli is the originator of one of the early lines of men's toiletries.

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La Cross Announces "Naylon" At Christmas in July Party

Schnefel Brothers Corp., Newark, N. J., held its annual "Christmas in July" party on the morning of July 15, in the La Cross salon.

In addition to the Christmas line of manicure implements, "Naylon," a complete line of nail polishes and preparations, was announced. The product has already been tested in Boston and Buffalo. National distribution is expected this Fall.

Almor, Inc., Established

Ruth Fox has opened a new firm under the name of Almor, Inc. The new company, located in New York, N. Y., will concentrate on "Hollywood Town."

Distribution Conference Scheduled Oct. 14-15

The eighteenth Boston Conference on Distribution is scheduled to take place Oct. 14-15, at the Statler Hotel, Boston, Mass. The conference is under the sponsorship of the Retail Trade Board, Boston Chamber of Commerce, Harvard University, Graduate School of Business Administration, Boston University College of Business Administration, and Massachusetts Institute of Technology.

American Chemical Society to Meet

The 110th national meeting of the American Chemical Society will be held in Chicago, Sept. 9-13.

ADCA Meetings Called Success

A. S. Bedell, secretary of the Allied Drug and Cosmetic Assn. has announced that the attendance this Summer of the regular monthly meeting of the association has been far above any other year. The latest meeting was held at the Birmingham Country Club, July 23.

Advanced Cosmetics Organized

Advanced Cosmetics, Inc., a private brand cosmetics manufacturing firm, has been formed. Offices and plant are located at 38-31 Crescent St., Long Island City, N. Y.

Cream Deodorants Most Popular

True Romances has conducted a survey on deodorant preferences among its readers which shows that cream types are outstandingly popular.

Preference for this type by ages shows: 98.5 per cent, under 18; 90.7 per cent, 18 to 25; 90 per cent, 26 to 35; and 85.3 per cent, of those over 35.

The survey showed further that women prefer antiperspirants, and that the majority of the men under 35 in the reader's family used deodorants.

McNinch and Flanagan Officers of Greenleaf, Inc., Chicago, Ill.

The caption under the photograph on page 92 of our July issue stated that D. L. McNinch and Thomas Flanagan were Chicago representatives of Dr. Alexander Katz & Co. This was an error. Mr. McNinch is president and Mr. Flanagan is vice president of Greenleaf, Inc., Chicago, Ill., and neither is a representative of Dr. Alexander Katz & Co.

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Obituary

Richard M. Krause

Richard M. Krause, founder and head of Richard M. Krause, Inc., New York, N. Y., who was a great influence on the art of fine packaging in this country for over 40 years, died August 2 at Lake Mahopac following a brief illness. Mr. Krause was born 68 years ago in France. He was buried in St. John's Cemetery in Brooklyn.

Richard M. Krause

Mr. Krause began his business career as a telephone operator with a chemical concern in Brooklyn. His apprenticeship in the field in which he was to carve out his future commenced when he became associated with the Artistic Engraving Co. in 1892. Following this, he joined C. F. Beatty, where he learned color printing and gold leaf stamping. He next joined Henry & Sutherland and was so proficient in his work that he was offered an interest in the business.

He had plans for operating a company of his own, however, and after staying a year to train a successor, opened his own business, specializing in embossed labels and box wraps on July 3, 1905. A branch plant was opened in Chicago in 1918 to take care of mid-western accounts, and a Canadian branch was opened in Toronto in 1922. The Chicago branch was sold in 1942 to one of his employees.

During the past few years Mr. Krause has relegated much of the work of the firm to older employees, and to his son, Richard M. Krause, Jr. The latter has been with the firm for 19 years, and prior to enlistment in the Armed Forces, had assumed active management of the company. Mr. Krause spent the time obtained in this way in research, merchandising comparisons and the proper approach to changing trends.

Mr. Krause is survived by his widow, Adeline Krause, a son, Richard M. Krause, Jr., a daughter, Mrs. Muriel Rodgers.

The American industry owes much to the contribution of Mr. Krause; for his artistry and appreciation of the sales power of the package did much to help establish its present prestige. He was highly respected throughout the industry for his ideals and his robust honesty. In his death the industry has suffered a big loss.

Jesse L. Hopkins

Jesse L. Hopkins died on July 13 of a heart ailment at the age of 86. He was the founder and president of J. L. Hopkins & Co., New York, N. Y.

Mr. Hopkins entered the drug business in Baltimore, at the age of fifteen. Later he was associated with Sharp & Dohme and Dietz & Hopkins, and formed J. L. Hopkins & Co. in 1892.

He is survived by a son, Edward Irving, and two daughters, Mrs. August Sartorius and Mrs. Joseph Lockwood.

Jeanne Lanvin

Jeanne Lanvin, 79, Paris fashion expert and head of Lanvin Parfums, died at her home in Paris on July 7, after a fifteen-day illness.

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Illustrates tendency towards the adopting of new substances by the cosmetic industry as a result of the attention given cosmetic raw materials in America and in Europe (e.g., methyl cellulose, sodium alginate, sapamine salts, sulphated fatty alcohols, etc.). Considerable new matter relating to bath oils and foam baths, hair lacquers and creams, powder sticks, etc. "A new high level in the field of perfumery and cosmetic literature."

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MARKET REPORT

Chemically Pure Glycerine Prices Rise

WHILE price developments in the general line of essential oils and aromatic chemicals were confined within relatively narrow limits, several basic materials, namely, stearic acid, red oil, tallow, greases, and glycerin were marked by rather substantial gains. Vanillin made from eugenol was also advanced quite sharply in keeping with steadily rising raw material costs. The increase in eugenol vanillin was officially authorized without reference to the expiration of the Price Control Act on June 30th. The adjustment, the first in a long while, will it is believed, bring about a decided improvement in production. Output of vanillin from guaiacol had been reduced to a minimum over the past month because of a strike at one large plant. Prices on lignin vanillin failed to be affected. Production of the latter has, according to reports, shown some improvement in recent weeks.

AMYL CHEMICALS SHORTAGE

With several alcohol plants having to discontinue operations because of a shortage of molasses and grain, a severe scarcity of fusel oil has developed, thus being reflected in a material strengthening in the supply position of all amyl chemicals. Major alcohol producers are continuing to draw on the Government stockpile to fill necessary demands, thus it is generally feared that amyl chemicals will grow scarcer.

For the first time in almost a year quotations on lanoline declined several cents as the result of a more competitive condition in the market.

Three producer-refiners of glycerin boosted prices on chemically pure material several cents a pound to 21 cents in tankcars in keeping with the mounting costs of tallow and greases. One refiner, however, announced that it was invoicing new business on chemically pure as high as 54¾ cents per pound. The situation in crude glycerin found sellers' and buyers' ideas far apart and some soaplye crude was reported to have sold on a basis that accounted for the higher price on chemically pure.

Total demands for glycerin have continued to run well ahead of production but there appears to be a somewhat brighter outlook regarding supply. The Government had intended to allocate 25,000,000 pounds of coconut oil for use in the soap kettle during July, but this quantity was doubled for the month, and it is indicated that greater quantities of oil will be available for soap manufacture in the month ahead, thus allowing for a greater amount of glycerin to be made. About 3,000,000 pounds more glycerin may be produced out of the 50,000,000 pounds of coconut oil than from ordinary tallow and greases. It is estimated that imports in the United States will run close to 300,000,000 pounds of copra this year. May production of crude glycerin (absolute basis) amounted to 14,403,000 pounds. Factory and warehouse stocks at the end of May totaled 50,001,000 pounds as compared with 50,533,000 pounds on hand at the end of April.

BERGAMOT OIL FROM ITALY

Already having discounted a freer movement of beragmot oil from Italy, the spot market appeared to have turned steadier toward the close of last month. Additional arrivals of lemons have failed to have any influence upon the general tone of the local market in view of the strong position in California oil and the fact that suppliers failed to have difficulty in finding outlets for the new lots.

The upward trend in native lemongrass oil was extended. Local houses have been able to build up a moderate supply of anise and cassia. In the light of a steady downward trend in the prices of both oils over a period of months, there appeared less inclination on the part of importers to reduce prices any further. Both anise and cassia are still considerably above normal in price but it is generally believed that current selling prices are not too far out of line considering the fact that a great many articles are continuing to sell far above what might be considered normal.

Because of the unusually firm conditions that exist in sperm oil, quotations on spermaceti wax have been advanced for the first time since January, 1942. The supply position of the market is exceedingly firm, with the inquiry for additional lots serving to cloud the outlook toward any possible easing in the situation. Trade in menthol turned quieter toward the close of last month following a renewed upward trend in values. Occasional small parcels of Chinese menthol were sold here at slightly below the prices ruling on Brazian material, but the quantities were so small that they failed to have any affect upon the general tone. While the limited offering from China have tended to discount earlier advices that about 100 tons were available for export to the United States, it is understood that most of these goods are in the hands of speculators being held for fancy prices.

GUM TRAGACANTH STOCKS SHORT

Flood conditions in the port area of Iran seriously interrupted exports of gum tragacanth to the United States. Spot stocks of both ribbon and flake gum have been rapidly dwindling.

Future developments in gum arabic bear close watching. Exporters at Port Sudan report that they are booking fair size orders for the account of European buyers at advancing prices. A reasonably good supply of gum mastic is reported available for export from Greece.

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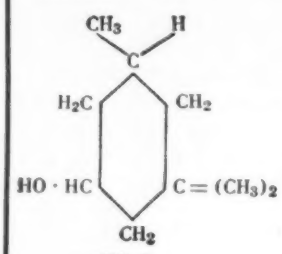

FIG. 1

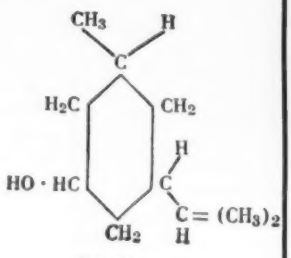

FIG 2

Cyclonol replaces Menthol satisfactorily in shaving creams and lotions, liniments, analgesic balms, ointments and similar preparations. It has also been accepted by the U. S. Treasury Department as a Denaturant for alcohol in place of Menthol U.S.P.

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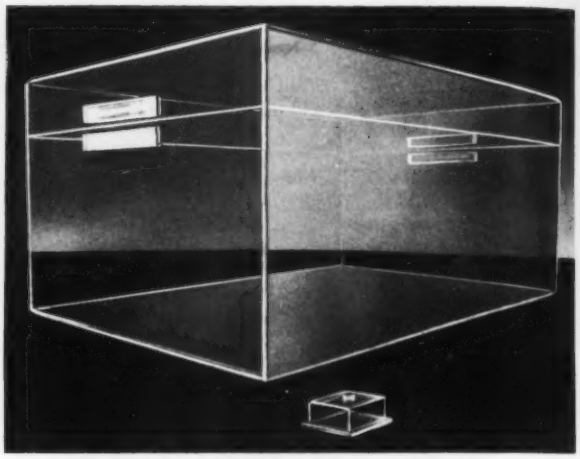

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(Quotations on these pages are those made by local dealers, but are subject to revision without notice)

ESSENTIAL OILS

Almond Bit, per lb.	3.50@	4.00
FFPA	4.75@	5.10
Sweet True	1.25@	1.50
Apricot Kernel	.55	Nom'l
Amber, rectified	2.25	Nom'l
Angelica Root	125.00@	150.00
Anise, U. S. P.	1.90@	2.50
Imitation	1.75@	2.10
Aspic (spike) Span.	2.85@	3.25
Avocado	1.05@	1.25
Bay	1.35@	1.60
Bergamot	5.25@	6.00
Artificial	3.35@	6.00
Birch, sweet	2.50@	5.00
Birchtar, crude	3.50	Nom'l
Birchtar, rectified	5.00	Nom'l
Bois de Rose	5.75@	6.00
Cade, U. S. P.	.90@	1.20
Cajeput	3.00	Nom'l
Calamus	22.00@	25.00
Camphor "white" dom.	.25@	.30
Cananga, native	9.75@	10.50
Rectified	11.75@	12.15
Caraway	7.00@	7.50
Cardamon	19.00@	22.00
Cassia, rectified, U. S. P.	5.00@	5.30
Imitation	3.75@	
Cedar leaf	1.10@	1.25
U. S. P.	2.50@	3.10
Cedar wood	.89@	1.00
Celery	16.50@	18.00
Chamomile Roman	250.00@	
Cinnamon bark oil	32.50@	35.00
Citronella, Ceylon	2.00	Nom'l
Java type	5.50@	6.00
Cloves, Zanzibar	1.50@	1.55
Coriander	20.00@	25.00
Imitation	12.00@	14.00
Croton	4.25@	4.80
Cumin	9.00@	11.00
Dillseed	7.00	Nom'l
Erigeron	2.25@	5.00
Eucalyptus	1.09@	1.15
Fennel, Sweet	4.00@	4.50
Geranium, Rose, Algerian	17.50@	19.00
Bourbon	17.00@	20.00
Turkish	7.50@	8.00
Ginger	11.50@	12.25
Guaiac (Wood)	2.90@	3.10
Hemlock	2.65@	3.34
Substitute	.55@	.60
Juniper Berry	8.25@	10.00
Juniper Wood, imitation	1.00@	1.25
Laurel	5.00	Nom'l
Lavandin	5.00@	5.75
Lavender, French	13.00@	15.00
Lemon, Calif.	3.25@	
Italian	3.25@	5.10
Lemongrass	3.85@	4.10
Limes, distilled	6.00@	7.00
Expressed	13.50@	15.00
Linaloe	5.35@	5.75
Lovage	95.00	Nom'l
Marjoram	7.25@	7.50
Neroli, Bigarde P.	300.00@	375.00
Petale, extra	265.00@	300.00
Olibanum	4.75@	5.10
Opopanax	30.00@	38.00
Orange, bitter	3.50@	3.95
Brazilian	1.60@	1.75
Calif., exp.	2.00	Nom'l
Orris Root, abs. (oz.)	135.00@	
Artificial	36.00@	40.00
Pennyroyal, Amer.	3.35@	3.75
European	3.40@	3.85
Peppermint, natural	7.15@	7.40
Redistilled	7.65@	7.70
Petitgrain	4.25@	4.60
Pimento Berry	7.00@	7.60
Pinus Sylvestris	4.25@	5.00
Pumillonis	4.25@	4.75
Rose, Bulgaria (oz.)	36.50@	45.00
Synthetic, lb.	45.00@	55.00
Rosemary, Spanish	1.60@	1.75
Sage	2.65@	3.25
Sage, Clary	25.00@	30.00
Sandalwood, N. F.	9.52@	
Sassafras, natural	2.00@	2.15
Ocotea Cymbarum	.90@	.96
Snake root	12.00	Nom'l
Spearmint	5.50@	
Thyme, red	3.25@	3.40
White	3.55@	3.80
Valarian	40.00	Nom'l
Vetivert, Java	50.00	Nom'l
Bourbon	35.00@	40.00
Wintergreen	4.00@	8.25
Wormseed	5.00@	5.35
Ylang Ylang, Manila	38.00	Nom'l
Bourbon	18.00@	20.00

(Continued on page 107)

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(Continued from page 105)

TERPENELESS OILS

Bergamot	16.50@	20.00
Grapefruit	65.00	Nom'l
Lavender	28.00	Nom'l
Lemon	40.00@	45.00
Lime, ex.	85.00@	100.00
Distilled	60.00@	67.00
Orange sweet	82.00@	112.00
Peppermint	13.00@	13.80
Petitgrain	3.85@	4.25
Spearmint	5.00@	6.00

DERIVATIVES AND CHEMICALS

Acetaldehyde 50%	1.90@	2.75
Acetaphenone	1.65@	1.80
Alcohol C 8	4.25@	
C 9	14.00	Nom'l
C 10	4.25@	
C 11	11.50	Nom'l
C 12	4.25@	
Aldehyde C 8	12.00@	18.00
C 9	27.00@	30.00
C 10	12.00@	17.00
C 11	22.00	Nom'l
C 12	23.50@	28.00
C 14 (so called)	7.50@	9.00
C 16 (so called)	7.65@	8.25
Amyl Acetate	.55@	.75
Amyl Butyrate	.90@	1.10
Amyl Cinnamate	4.50@	5.80
Amyl Cinnamate Aldehyde	2.35@	2.80
Amyl Formate	1.00@	1.50
Amyl Phenyl Acetate	3.65@	4.00
Amyl Salicylate	.80@	1.00
Amyl Valerate	2.10@	2.75
Anethol	2.65@	3.25
Anisic Aldehyde	3.10@	3.75
Benzoprenone	1.15@	1.30
Benzyl Acetate	.55@	.65
Benzyl Alcohol	.75@	1.00
Benzyl Benzoate	1.05@	1.20
Benzyl Butyrate	2.10@	2.25
Benzyl Cinnamate	6.75@	7.00
Benzyl Formate	2.50@	3.75
Benzyl-Iso-eugenol	9.50	Nom'l
Benzylidenacetone	2.10@	3.05
Borneol	1.80	Nom'l
Bornyl Acetate	2.25	Nom'l
Bromstyrol	6.00@	6.50
Butyl Acetate	.19½@	.19¾
Cinnamic Alcohol	3.00@	3.60
Cinnamic Aldehyde	.95@	1.10
Cinnamyl Acetate	8.75@	10.00
Cinnamyl Butyrate	12.00@	14.00
Cinnamyl Formate	10.00@	13.00
Citral, C. P.	7.25@	7.50
Citronellol	6.50	Nom'l
Citronellyl Acetate	8.60@	9.20
Coumarin	3.00@	3.50
Cuminic Aldehyde	8.00@	11.25
Diethylphthalate	.24@	.30
Dimethyl Anthranilate	4.55@	5.00
Ethyl Acetate	.25@	.35
Ethyl Anthranilate	5.50@	7.00
Etyhl Benzoate	.75@	1.00
Ethyl Butyrate	.75@	.90
Ethyl Cinnamate	3.60@	3.80
Ethyl Formate	.65@	.80
Ethyl Propionate	.80	Nom'l
Ethyl Salicylate	.90@	1.00
Ethyl Vanillin	5.25@	6.00
Eucalyptol	2.65@	2.85
Eugenol	2.85@	3.35
Geraniol, dom.	6.25	Nom'l
Geranyl Acetate	3.60	Nom'l
Geranyl Butyrate	8.50	Nom'l
Geranyl Formate	13.40	Nom'l
Heliotropin, dom.	3.75@	4.00
Hydrotropic Aldehyde	7.60@	8.10
Hydroxycitronellal	8.50	Nom'l
Indol, C. P.	20.00@	23.00
Iso-borneol	1.10	Nom'l
Iso-butyl Acetate	1.25@	2.00
Iso-butyl Benzoate	1.50@	2.60
Iso-butyl Salicylate	2.70@	3.00
Iso-eugenol	3.85@	4.00
Iso-safrol	3.00	Nom'l
Linalool	8.00	Nom'l
Linalyl Acetate 90%	8.50	Nom'l
Linalyl Anthranilate	15.00@	
Linalyl Benzoate	10.50@	
Linalyl Formate	9.25@	12.00
Menthol, Brazilian	8.50@	9.25
Methyl Acetophenone	1.80	Nom'l
Methyl Anthranilate	2.25@	2.40
Methyl Cellulose, f.o.b., shipping point	.60	Nom'l
Methyl Cinnamate	3.25@	3.80
Methyl Eugenol	3.50@	6.75
Methyl Heptenone	3.50	Nom'l
Methyl Heptine Carbonate	45.00@	60.00
Methyl Iso-eugenol	5.85@	10.00
Methyl Octine Carbonate	24.00@	30.00
Methyl Paracresol	2.50	Nom'l
Methyl Phenylacetate	3.80@	4.00
Methyl Salicylate	.37@	.38
Musk Ambrette	4.25	Nom'l
Ketone	4.35	Nom'l
Xylene	2.00	Nom'l
Neroline (ethyl ether)	2.00@	3.15
Paracresol Acetate	2.55@	3.00
Paracresol Methyl Ether	2.60@	2.85
Paracresol Phenyl-acetate	6.00@	7.25
Phenylacetaldehyde 50%	3.00	Nom'l
100%	5.00	Nom'l
Phenylacetic Acid	2.10@	3.00
Phenylethyl Acetate	3.00	Nom'l
Phenylethyl Alcohol	2.80@	3.00
Phenylethyl Anthranilate	16.00@	

(Continued on page 109)

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(Continued from page 107)

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Phenylethyl Propionate	3.45@	3.90
Phenyl Valerianate	16.00@	17.50
Phenylpropyl Acetate	10.00	Nom'l
Santalyl Acetate	20.00@	22.50
Scatol C. P. (oz.)	5.35@	6.00
Styrolyl Acetate	2.50@	3.00
Vanillin (clove oil)	4.50@	4.65
(guaiacol)	2.35	Nom'l
Lignin	2.35	Nom'l
Vetivert Acetate	25.00	Nom'l
Violet Ketone Alpha	18.00	Nom'l
Beta	15.00	Nom'l
Methyl	6.50	Nom'l
Yara Yara (methyl ester)	2.00@	3.10

BEANS

Tonka Beans Surinam	.85@	.95
Angostura	1.60@	1.85
Vanilla Beans		
Mexican, whole	11.00@	
Mexican, cut	10.00@	
Bourbon	7.75@	8.50
Tahati	3.35@	3.75

SUNDRIES AND DRUGS

Acetone	.07@	.07½
Almond meal	.25@	.35
Ambergris, ounce	12.00@	16.00
Balsam, Copaiba	1.80@	2.00
Peru	1.20@	1.30
Beeswax bleached, pure U. S. P.	.68@	.70
Yellow, refined	.60@	.62
Bismuth, subnitrate	1.20@	1.22
Borax, crystals, carlot ton	55.50@	58.00
Boric Acid, U. S. P., cwt.	6.95@	7.55
Calamine	.18@	.20
Calcium, phosphate	.08@	.08¾
Phosphate, tri-basic	.09@	.10
Camphor, domestic	.69@	.84
Castoreum, Canada	7.80@	10.00
Cetyl, Alcohol	1.75@	1.80
Chalk, precip.	.03½@	.06½
Cherry Laurel Water, jug, gal.	2.60@	3.10
Citric Acid	.21@	.24
Civet, ounce	18.00@	25.00
Clay, colloidal	.07@	.15
Cocoa, Butter, lump	.25½@	.27
Cyclohexanol (Hexalin)	.30@	.50
Fuller's Earth, ton	15.00@	33.00
Glycerin, C. P.	.21¼	Nom'l
Gum Arabic, white	.29@	.32
Amber	.15@	.16¼
Powdered, U.S.P.	.17@	.20
Gum Benzoin, Siam	5.00	Nom'l
Sumatra	1.40	Nom'l
Gum Galbanum	1.10@	1.35
Gum Myrrh	.50@	.55
Henna, pwd.	.28@	.30
Kaolin	.05@	.07
Labdanum	5.00@	7.00
Lanolin, hydrous	.25@	.26
Anhydrous	.28@	.29
Magnesium, carbonate	.09@	.10¾
Stearate	.24@	.27
Musk, ounce	45.00@	50.00
Olibanum, tears	.21@	.35
Siftings	.12½@	.14
Orange Flower Water, gal.	1.75@	2.25
Orris Root, Italian	.60@	.68
Paraffin	.06@	.09
Peroxide	1.10@	1.75
Petrolatum, white	.06¼@	.08½
Quince Seed	1.50@	1.75
Rice Starch	.10	Nom'l
Rose Leaves, red	3.45@	4.00
Rose Water, gal.	6.50@	8.00
Rosin, M. per cwt.	7.72@	
Salicylic Acid	.35@	.40
Saponin	1.75@	2.10
Silicate, 40°, drums, works, 100 pounds	.80@	1.20
Soap, neutral, white	.20@	.25
Sodium Carb. 58% light, 100 pounds	1.53@	2.35
Hydroxide, 76% solid, 100 pounds	2.60@	3.75
Spermaceti	.29@	.31
Stearate Zinc	.33@	.34½
Styrax	1.20@	1.35
Tartaric Acid	.62½@	.63½
Tragacanth, No. 1	5.00@	5.15
Triethanolamine	.19½@	.20½
Violet Flowers	2.00	Nom'l
Zinc Oxide, U. S. P. bbls.	.40½	Nom'l

OILS AND FATS

Castor No. 1, tanks	.143@	
Cocoanut, Manila Grade, c.i.f., tanks	.0835@	
Corn, crude, Midwest, mill, tanks	.12¾@	
Corn Oil, distilled, drums	.16¼@	.16½
Cotton, crude, Southeast, tanks	.12¾	Nom'l
Grease, white	.13⅛	Nom'l
Lard	.15475@	
Lard Oil, common, No. 1 bbls.	.17¾	Nom'l
Palm Niger, drums	.0865	
Peanut, blchd., tanks	.1501@	
Red Oil, distilled, drums	.16¾	Nom'l
Stearic Acid Triple Pressed	.22⅛	Nom'l
Double Pressed	.19⅜	Nom'l
Tallow, acidless, barrels	.16¾	Nom'l
Tallow, N. Y. C., extra	.12⅞	Nom'l
Whale oil, refined	.1232	Nom'l

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Marketing Drugs and Cosmetics

by LOUIS BADER, PH.D.
Associate Professor of Marketing, New York University

and

SIDNEY PICKER, M.C.S.
National Merchandisers

This is the sixth installment. The seventh will appear in the September issue.

COLLECTION BY SALESMEN: Very often the manufacturer will find if he is selling direct to the retailer that his money is not coming in as rapidly as it ought to because his salemen are not calling on the retailer frequently enough. The retailer who buys direct from the manufacturer frequently wants to await the salesman's call before he makes payment for his purchases. He has grown out of the habit of mailing his check, and if he has any slow-moving goods or a claim, he has good reason for waiting. The wise manufacturer, therefore, will have his salesmen arrange their schedules so as to get to the dealers in time to make collection of money due, as well as to sell another bill of goods.

PUBLIC GUARANTEE: Most consumers have become educated to buy goods with an implied guarantee of complete satisfaction. Whereas this guarantee is very seldom used, still every manufacturer must be prepared to stand behind his product and to make good any of the special claims that may be made upon the retailer by the consumer. With toilet articles, particularly, there is the possibility of being faced with both legitimate and illegitimate law suits growing out of real or fancied injuries from a product; the injuries arise from the sale of impure products, broken bits of glass in products, and other contingencies of this sort.

The manufacturer should insure himself against suits of this kind and should be prepared to back up his dealer against any claims of dissatisfaction from the public. He should be prepared, also, to fight the claims of personal injury when made by unscrupulous people. During a depression, claims of this type usually increase, and now many of the large retail buyers demand specific guarantees of protection against such claims. Department stores also demand this protection from their demonstration lines.

RETURN GOODS

Return goods present a problem in merchandising that is particularly serious in the drug market and that seems to be far from solution in any field. Some of the problem grows out of dishonest or poor merchandising on the part of the seller.

In the drug field the problem is complicated because the return goods includes not only the old and unsalable merchandise resulting from overstocking, but also imperfect merchandise, deteriorated goods, materials that are shop-worn, and goods left on the shelf by reason of changes of packages and style. There is no uniform method in the industry of handling return goods. Some companies accept merchandise not more than two years old and unsalable. Some firms will accept no returns of any kind other than imperfect goods shipped out in error.

When goods are returned the manufacturer usually does not pay the transportation charges. Many firms expect both the retailer and the wholesaler to request permission to return merchandise and to give very definite reasons for the return. Very often retail dealers and even wholesalers return merchandise without permission. This is generally objected to and manufacturers are becoming more inclined to refuse to issue credits for returns of this kind.

In order to reduce return goods as much as possible, a number of manufacturers got together and published a joint advertisement to the trade on the question of return goods. A goodly portion of the merchandise was holiday goods, and many dealers would be inclined, if their season was not successful, to return goods without authority.

The best thing to do apparently with respect to return goods is to establish terms and conditions of sale and state them in the contract of sale in a clear, unequivocal manner, and then to follow the policy adhering strictly to them. It is very difficult for the salesman to refute the many reasons that a dealer may give him for returning merchandise for credit, especially if the salesman has not stated facts accurately in his sales talk or has oversold. The manufacturer develops policies that are designed to build good will and generally they succeed so that when the policies are adequately explained they are usually accepted by businessmen. Occasionally a dealer bears ill will against a manufacturer if his claim, whether justified or otherwise, is not accepted. As a matter of fact, the more unjust his claim for return, the greater will be his grievance. If the rough study reveals the claim as unjust it should not be allowed, while a just claim should be allowed and settled promptly. It is possible to go from

one extreme to the other—no claims or allow all claims. In the first case a manufacturer should be sure that he holds a monopoly on goods that the dealer must stock; in the other case, he should make provision in the price to cover the percentage of returns as revealed by a cost study of sales.

The following rules governing return of goods have been suggested for adoption by a Committee of the Perfumery Importers Association after numerous conferences with the trade, and with various members of the association:

1. No merchandise is returnable except with the consent of the house from which it is bought.
2. We hold ourselves responsible for all damages to our merchandise due to defect in manufacture. We are not responsible for damage caused after merchandise leaves our possession or while it is in the hands of any carrier company.
3. Merchandise returned to us improperly or carelessly packed cannot be credited, nor can merchandise be returned for credit or exchange on account of damage occurring due to mishandling or faulty handling in stock.
4. Goods held in stock over a year are not returnable for credit or exchange under any circumstances.

It is thought that the above rules present a standard of fair dealing regarding returned merchandise, and should be welcomed by both the retailers and manufacturers. The subject of returns was treated in the perfumery code and redressing charges were specified, but still the return goods problem remains to be solved. It is an individual problem for each manufacturer.

WHOLESALER'S RETURNS: From time to time, usually at the end of the year or just after inventory, manufacturers will find that wholesalers will send remaining goods back if sales have been poor. The larger drug chains also follow this practice. Whether or not the manufacturer should make of himself a victim of carelessness and overbuying on the part of his customers is a matter for consideration. The question he needs to answer is, what does it cost? If it leads him into the red he will find it necessary to refuse. It would seem to be better to go out of business because of lack of business than to be a philanthropist who pays for other men's mistakes. The wholesaler who is compelled to take goods back from his retailer feels that the manufacturer should do as much for him, and this is a matter for discussion. However, some of the attempts to return goods are unfair. The greatest epidemic of return goods grew out of the consolidation of chain stores a few years back, when the accumulation of years of buying by many careless independent retailers was thrown back at manufacturers for credit. Fortunately for the health of the business community, most of the manufacturers refused to allow credit for such returns. The same stunt was tried later in a large wholesalers' consolidation, but many manufacturers refused to hold the bag for these concerns and so refused returns. Many manufacturers have now adopted the policy of allowing only salvage value for returns that are made for obsolescence or because of becoming shopworn.

FLEXIBILITY OF SALES POLICIES

Sales policies, firm as one should be in upholding them, need to be characterized by flexibility. They should be changed as occasion requires. The credit situation is influencing changes in policy along with other matters. Where at one time credit conditions made it inadvisable to open up too many direct accounts, now although credit conditions are good, difficulties in reaching many dealers have increased the importance of the wholesaler. Formerly, wholesalers had so many items to sell and so much merchandise, they did not have time to do much actual selling on many. Recently, with many items scarce, they are more inclined to concentrate on selling the goods that they can get. The same condition in the industry has effects on manufacturers, depending entirely on circumstances surrounding each line. This change in selling policies has been found necessary also because of the change in the attitude toward price maintenance.

There has been a general suspicion, very well founded at times, that many firms were receiving special prices from manufacturers and thus were able to undercut the general price range. This impression became so widespread that, wrong or right, many firms have suffered loss of good will because of it. Some of the largest manufacturers of drug products have found it necessary to set minimum prices, give their greatest discounts on $30.00 purchases, and allow no greater discount beyond the minimum figure. This is a policy that they have adopted in order to assure the bulk of retailers of the lowest possible price, and, as far as possible, to offset possible damage to good will that might hurt sales. The greatest controversy and discussion in preparation of the old Retail Drug Code centered around fair retail prices. Although temporary prices were fixed on the basis of cost, hardly anyone was satisfied, and the whole problem was thrown back for solution. However, hundreds of firms began working under minimum resale plans, regardless of what might finally develop as the result of action and study which grew out of the consideration of codes under the National Recovery Act. After the N.R.A. was invalidated, the industry fell back to the previous practice of special prices and concessions to large purchasers. This condition existed for several years, until the passage of the Robinson-Patman Bill in 1937. This now made it possible for the manufacturers to discontinue special concessions to large operators, not because they wanted to particularly, but because they were compelled to.

The feeling of unfair tactics with respect to prices is prevalent against drug manufacturers, but this is not the case in the cosmetic industry, where there is a somewhat different situation. The methods employed by manufacturers to gain retailer and wholesaler good will are covered completely in the chapter "Methods of Obtaining Dealer Cooperation."

Early in 1934, Coty, Inc., introduced an entirely different method of selling. They eliminated wholesalers entirely and confined their merchandise to sales agents or retailers on a consignment basis. They hoped by this method to stabilize prices and thus protect their prestige and their manufacturer's investment in the business during the chaotic conditions of the depression. With price cutting the principal factor, the consignment distribution plan has been adopted not only by them but many others. This consignment sale method, in order to keep retail prices at a fair level, was soon superseded by the registering under the state fair trade laws, with the aid of the Miller-Tydings Bill.

These are only a few of the changes that have taken place in the methods of dealer approach. Because of the increased cost of selling, the difficulty in reaching outlets, and the shortage of manpower, manufacturers are finding it to their advantage to curtail their selling efforts in the places that do not pay. The tendency is to cut fixed charges, reduce expenses, and substitute wholesaler's selling service as far as possible for the insecure, uncertain sales efforts of their own organization, which for one reason or another have not been successful.

CHAPTER 8

Merchandising the Ethical Product

This chapter gives specific information about the merchandising of ethical products. Ethicals are important in the drug business because some of the oldest and largest manufacturing concerns specialize in these products, they form the bulk of the druggist's prescription business, and new products are being continually added to the field as a result of scientific research. The marketing of ethicals involves special problems because of government regulations and professional standards. The newcomer in this field needs to know that the merchandising of these products is not a "shoe string business"; however, it is possible to start modestly if one has the proper background and knowledge of how to run the business.

IT is necessary for a number of reasons that special attention be given to the marketing of ethical products even though throughout this book ideas regarding their merchandising are given.

IMPORTANCE OF ETHICALS

To begin with, ethicals are a very important part of the drug business. Some of the largest of the manufacturers of chemicals and pharmaceuticals specialize in the production and sale of ethicals. They are old, respected, and successful concerns. The beginner wants to know how they have done this business, so that he may not make costly mistakes. Concerns already in the field need this knowledge because of the amount of business that is done in ethicals. Sales volume runs into hundreds of millions of dollars. The field is an important one to the druggist. The bulk of his prescription business consists of ethicals. Doctors prescribe and specify the items to go into the prescription and many times even the name of the producer. The pharmacist, duly authorized and licensed by the state, is the only one who can fill the prescriptions. For the pharmacist-druggist ethicals are peculiarly his business and for him they constitute a large and profitable business. How large may be seen from the following estimates of prescription sales at retail in United States drug stores:[1]

1940	$176,518,765
1941	195,046,184
1942	222,203,908
1943	265,802,097
1944	302,485,771

For the manufacturers of ethicals the business is much larger even than these figures indicate. They sell not only to drug stores but also to doctors, to institutions such as hospitals, and to government departments like the United States Army and Navy, as well as for export.

The ethical field is important, too, because of its future. During the past twenty years a great deal of research has been done to find new pharmaceuticals to cure or mitigate the diseases to which mankind is heir. Many new products have been developed—insulin, the sulfonamides, the barbiturates, penicillin, streptomycin, and rutin, to mention only a few of the outstanding ones, which give some indication of what has been done and is to come. The next twenty years may see even more revolutionary discoveries. All the above have led to or indicate they will lead to large consumption. This consumption has been principally through doctors' prescriptions and the products have been sold as ethicals. The business in ethical drug products is increasing and it is more rather than less likely to increase in the future as research for cures for influenza, cancer, heart diseases, and other ailments bears fruit.

Another reason for special study of this field is the way ethicals are merchandised. To begin with it should be noted that ethicals are sold through drug stores and other medical outlets. On the other hand the proprietaries and cosmetics are sold not only through drug stores but also through many other outlets, including even grocery stores and barber and beauty shops. This is an important observation for the newcomer in the field because it definitely prescribes the methods of merchandising. You do not use the same kind of salesmen, sales talks, advertising copy and media in all outlets. The appeal is different for different products.

With most proprietaries and cosmetics the appeal is to the laity in general, that is, to the public, the mass market, rich and poor alike. "Mass" advertising media are used. At the point of purchase window and store devices are used and the copy employed is of the strikingly simple types that catch and hold attention and that are easily understood. There are restrictions as to approach and methods of sale that are prescribed by the Federal Trade Commission and claims of efficacy by the labeling regulations of

the federal department operating under the Pure Food and Drug Act of 1938.

With ethicals, the restriction goes further. Not only must these laws be observed, but also the ethical demands and requirements of the American Medical Association and the American Dental Association. Unless acceptance is obtained from the medical and dental organizations and unless great care is taken to keep the sales approach definitely on the professional basis, ill will can be created that can well prove disastrous. The principal restrictions and regulations of the Federal Trade Commission and the Federal Food and Drug Administrator are set forth in a later chapter.

CLASSIFICATION OF ETHICALS

Generally speaking, ethical products may be divided into 3 classes:

1. Standard United States Pharmacopeia or National Formulary products
2. New medicinal discoveries, such as, insulin, penicillin, sulfa drugs, and the like
3. Patented specialties developed by research of individual manufacturers and offered as specialties—typical example, benezedrene, argyrol, mercurochrome

In the marketing of a standard U.S.P. or N.F. product—and they include elixirs, tinctures, syrups as well as the standard pills and tablets—the sales approach to the dealer differs very little from that used for other products. Few of these products are ever advertised to the public, although many of them are purchased by the public without professional endorsement. Therefore the sales problem is entirely one between manufacturers and dealers. Sometimes the dealer will buy on price, sometimes because of friendship with a salesman, more often because of confidence in the firm offering the product for sale. When he dispenses the product, whether on prescription or over the counter, neither the doctor nor the user is likely to inquire the name of the manufacturer. A customer for tincture of iodine or a prescription for a cough medicine containing elixir terpine hydrate is not likely to call for any particular manufacturer; therefore the druggist will supply the product he prefers to sell.

In the second group of specialties we are faced with a different selling problem. There the particular discoveries have been restricted in most cases to a limited number of manufacturers. The products are presumably identical; therefore, it becomes necessary for a particular manufacturer to attempt to convince the medical profession to recommend his product in preference to that of another manufacturer. This brings with it the problem of an adequate force of detail men both for the profession and dealers and constant promotion to keep the manufacturer's name as a reminder to the professional man of that particular product.

The problem then becomes as much one of selling the dealer as the doctor. While a doctor may prescribe a specific like penicillin of a certain manufacture, if the patient's dealer happens to be out of stock, he usually will suggest to the physician that of another manufacturer. Since the obtaining of 100 per cent distribution is usually difficult, many doctors are prone not to mention the manufacturer's name for products of this type so that any brand in the druggist's stock may be used.

With the advent of many new drugs, manufacturers have been trying to acquire brand-name recognition for their individual products. The American Medical Association has gone on record as opposing this policy, believing that all recognized licensees and manufacturers of all new drug discoveries should sell their products on the basis of the type rather than as a creation of a brand name.

The third group of ethical products, that of specialties prepared by the manufacturers as specifics, creates a still greater merchandising problem. There the research efforts and discoveries are the basic background of the manufacturer's efforts. His sales campaign must be double-barreled, to sell the doctor on the idea of prescribing his product and the dealer on the idea of stocking the product. This procedure may in some cases require two different sales staffs and sales approaches, one to the physician and one to the dealer, and two different types of salesmen. The detail man's function will be to explain to the doctor the uses and purposes of new products. With so many physicians returning from the service, who are still unfamiliar with new specifics, the importance of the good detail man becomes self-evident. Generally, this type of representative must have: 1. Knowledge of some science preferably pharmacy; 2. Ability to absorb technical details and to talk effectively and persuasively about them; 3. An agreeable and impressive personality.

The men who are selected to sell the dispensing doctors ethical products need not have the same scientific knowledge as the detail man. Their problem is to make the sale and since they are, most likely, selling standard products that are more or less familiar to the doctor, the scientific background is not so important as it is for the salesmen detailing the prescribing doctor.

The same type of representative selected and trained to meet the doctor can be selected to call on dentists or veterinarians.

The salesman who calls on the dealer may be a regular member of the staff or he may be specifically trained to call on doctors and druggists in the same territory particularly if he is working on a specialty. For additional treatment of salesmen, their selection, training and direction the reader is referred to Chapter 9 on sales organization.

PRICES AND DISCOUNTS

Ethical products are rather free from restrictions resulting from competitive efforts. If the product is an exclusive specialty to be dispensed on prescription only, the price fixed should be within the range of the average price charged for prescriptions, that is, between $1.25 and $2.50. Where the original package may be dispensed, the dealer's margin should be adequate, at least 33 1/3 to 40 per cent off the retail price. One firm is embarking on what they call a fee basis for the retailer where extra discounts or fees are allowed for the manufacturer's products the druggist recommends.

TRADE PRACTICES: The wholesale discounts range between 16 2/3 to 25 per cent depending on the custom of the manufacturer with his other products. Where products have a dating factor, in other words, must be used within definite periods, manufacturers always have the obligation to exchange all merchandise that may be outdated. This applies also to merchandise in the hands of the retailer.

Therefore care must be taken not to oversell retailers. Freight is usually allowed on all products and the standard terms are 2/10 net 30 as a rule, although some manufacturers adopt the controlled distribution policy by working on a consigned stock basis only with a limited number of wholesale outlets in any territory.

ADVERTISING AND TRADE PROMOTION

An ethical product, it should be remembered, is one that is not only prescribed by the profession but that is also sold in an ethical manner. This restriction of marketing in an ethical manner prescribes the methods to be used by the dealer and the kind of advertising promotion to be used. Since advertising to the laity is not necessary, it is clear that many of the accepted ways of advertising are eliminated. This leaves out magazines, radio, newspapers, outdoor display and much of the indoor display and leaves open chiefly detailing, sampling and professional advertising, plus professional endorsement where this can be secured.

Along with detailing goes sampling to the profession. Generally, this method has proved very effective in interesting doctors and securing their endorsement. However, the methods used in distributing samples should be checked carefully. Frequently sample distribution is wasted, for it does not produce the results intended. Where samples are not distributed with discretion, frequently the druggist complains with good reason that too free distribution of samples cuts down his sales, as doctors may use these excess samples for their patients.

Samples may be distributed by direct mail, by detail men, or in response to requests received from medical journal advertising. The many local and national medical journals and drug association papers may be used to back up field men. Their accepted methods help break the way for the efforts of the field men.

Probably the wisest way to sample is to combine all three methods indicated above. Advertise in the medical journals most freely read by doctors and invite them to send for a sample. After a period of this invitation repeat every so often, then mail a sample to a selected list of doctors. A suitable time after this sample has been dispatched, send out the detail men to call on the doctors with further samples to be left after they have sized up the doctors' reaction to the use of the product.

Enough samples may have to be given to some doctors for them to try out on some of their patients. Many general practitioners have a number of "guinea pig" patients on whom they can try some of the products. The results, if apparently favorable, encourage them to prescribe the product.

The procedure just suggested calls attention ethically to a product sufficiently to pave the way for the detail man and at the same time distributes samples with enough control so that they do not become obnoxious to the druggist by interfering with his sales.

Since direct-mail advertising is an important device in the sale of ethical products considerable care should attend the use of it. In Chapter 14, on advertising drug store products, detailed treatment is given to within the space limits at our disposal. It is in order here to emphasize one aspect of direct-mail advertising. In selling ethical products one appeals to a highly select group of customers. Doctors, to whom the appeal is most frequently made, are usually well-educated, cultured scientists who are interested, because of their ethical concepts, in curing or mitigating the effects of disease. The appeals that a producer or distributor makes to them must be of a high order. They must explain in detailed fashion in a scientific way just what is being offered and what it does. The language used, while it can be simple, must be clear and grammatically correct. The paper and envelopes used must match the high task you are trying to accomplish. Since most doctors are busy men your appeal must be made frequently to hold attention and secure action.

PROFESSIONAL ENDORSEMENT

Acceptance by the American Medical Association or the American Dental Association is advisable for any product for which professional use or recommendation is needed. The standard conditions for obtaining this endorsement include particular care in the method of preparation, limitation of claims of curative powers to known and proved results, and care in the methods of selling. Without this approval, the chance of obtaining effective constant prescribing or recommendation by the profession is materially cut down.

GOVERNMENT RESTRICTIONS

In all the above, we have not forgotten the requirements of the regulation promulgated under the Pure Food, Drug and Cosmetic Act of 1938. When it comes to specialties, the regulations become doubly important. All claims of curative power, all labels and other literature must be approved by the department and great care be taken that the requirements under the act be adhered to. Further details on these functions will be found in Chapter 16, to which the reader should refer.

HOW TO START A BUSINESS IN ETHICAL PRODUCTS

For the newcomer to break into the specialty field is not easy. Not only does he have to follow the very carefully prescribed rules and regulations of the Food and Drug Act, the restrictions of the medical profession and American Medical Association, and go to the expense of getting individual endorsement, but also he has to face the problem of the competition of the many large firms in the field, who have large research and detail forces and many years of accepted good will among doctors and druggists to back them up. Even today, many of the large firms with ample finances, find the ethical field in specialties and standard new remedies giving them many merchandising and sales problems, which they are trying hard to solve by the development of a host of merchandising devices that may do the job.

In entering this field, the beginner must realize it is not a shoe-string proposition because:

1. It takes money to develop a new drug or manufacture an old one:
   a. Certain conditions of manufacture required by regulations must be met.
   b. Research is costly.
2. Strong financial resources are needed to compete against firms already established and which have gained the confidence of the medical fraternity.
3. It takes money to detail both physicians and druggists:
   a. Doctors can be called on only during office

hours unless appointments are made.

b. High grade, therefore expensive, salesmen are necessary.

c. They need a special training to break into a doctor's practice even during office hours and not give offense.

However, it can be done on a moderate amount of capital more easily with old standard drugs than with a new item that has to be pioneered. But even with a new one this can be done if they know scientists in the field who are developing new items and who will let a newcomer handle it, as was the case with vitamins.

The recommended method for any newcomer, with a good idea and limited means, is to select a working area that can be covered by the entrepreneur or a single representative. The field representative would call on the physicians, tell the story to arouse his interest, and then call on the druggists in the area to acquaint him with what has been done. Since there are many small local medical papers, a limited amount of prestige advertising is possible. This method has been employed many times in building up individual specialties for specific treatments. This type of specialty runs to hay fever remedies, treatments for athlete's foot and similar items, where medical endorsement and druggist recommendation can be worked together.

There are several words of caution to suggest at this point—

(1) All manufacturers must exercise great care and see to it that, even though their product is being marketed as a strictly ethical one, the public does not become too familiar with its purposes and uses and gradually force it into the class of a proprietary. This has happened in the past in many cases and the result has been the development of ill will on the part of the dealer and the medical profession.

(2) The economic health of the market needs careful consideration. In a period when most people are enjoying high incomes they are inclined to consult the doctor more frequently. The doctor then prescribes ethical products and proprietaries may suffer. Witness the withdrawal by Standard Brands, Inc., in 1944 and Lever Bros. Co., in 1946 from the market of their proprietary brands of vitamins. The cost of repeat sales were apparently too high for them. At the same time the sale of "ethical" house vitamins have soared during the same period.

(3) The developments in health education need to be watched and appraised. As research reveals how complex treatment of diseases must necessarily be again people may resort more and more to physicians and rely less and less on self-medication. While the reverse of this may take place where simplification occurs and people learn more and more about simple remedies which relieve, if they do not cure, and use them without consultation with their doctors.

(4) The old saw "Shoemaker stick to your last" may also affect some people's action. After all what is there about a soap maker or a food manufacturer and distributor to suggest that his specially prepared pharmaceutical is better to take than that of an old-line pharmaceutical house which has carried on research and manufacturing in the health field for many years.

[1] Annual census by *Drug Topics*.

CHAPTER 9

Organization of Marketing Division

In this chapter there is outlined a possible organization of the marketing department for a concern making and selling drug store products. The organization proposed follows the line-and-staff type now used successfully by some outstanding concerns. This type may be followed by small concerns as well as large. In the smaller business one man may have several duties to perform as contrasted with the delegation of one or more men to a single activity, in a larger concern. Here also one will find suggestions for building a sales force either by hired salesmen or independent sales agents and for securing wholesaler and newspaper sales cooperation, sales practices that are followed to make certain difficult types of sales, the equipment of the salesman, the use of sales contests and the size of territory and number of calls a day salesmen should make. It is finally indicated that one should have a flexible attitude of mind toward sales policies. To be sure careful study should precede adoption of sales policies and one should be ready to change them as conditions and study reveal the necessity thereof.

ONE of the first questions to consider when one starts to sell is: "What type of marketing organization shall be developed?" The ideal organization would be one of the line-and-staff type. This would mean an organization headed by a chief executive and departmentalized into personal selling, advertising, and sales promotion divisions. The personal sales division would have control of all field salesmen and branches from which the salesmen would operate. They would be charged with executing the instructions given them by the officer in charge of marketing. The advertising department would execute all instructions given them in connection with the advertising decided upon. The

sales promotion or staff division would be charged with the duties of selecting and training the personnel of the marketing division, the carrying on of all cost studies to discover the profitableness of the various types of business handled by the manufacturer and the necessary research to discover markets and the various ways of reaching them.

SELECTION OF SALES PERSONNEL

In the sale of drug products the most important thing is to stock the dealer first, and to do this successfully a good sales personnel is necessary. Questions such as these then arise: "What types of men and women are most successful as sales personnel?" "Where are they to be found?" "How are they to be selected, trained, allocated to territories, equipped and compensated to secure the best results?"

In the drug field the owner of the business frequently heads the marketing department, particularly if he has had experience in selling and likes that kind of work. Otherwise he will select someone who has had much experience selling similar products and who has a wide acquaintance among buyers of drug store products; in short, one who has been a producer of sales.

The selection of salesmen is a personnel problem, the solution of which should be based entirely on the recorded experience of the manufacturer and others. Men are of different degrees of ability and for the variety of products and types of customers in the drug and cosmetic field men of varying abilities are required for successful selling.

TYPES OF SALESMEN NEEDED: The line or item that is to be sold to the neighborhood retail druggist is best handled by a plugger, one who will be sure to cover many outlets and make sales not so much by brilliance of ability as by persistence of effort. Experience shows that such an individual will usually produce more stable and efficient sales results than persons of other types. However, when sales are to be made to the high-spot retail outlets, department stores or drug chains, then the manufacturer requires a more brilliant, highly polished salesman. Here is needed an individual who is of sufficient intelligence and experience to meet the up-to-the-minute buyer on his own ground, and who is able to explain efficiently and intelligently his product both from the merchandising and advertising angles, and who is able to convince his prospects of the advisability of purchasing his products. This man should be able to give sales talks to store clerks and managers, and even spend part of his time training them in the details of his line.

TURNOVER OF SALESMEN: The requirements for each sales job should be worked out by a job analysis, and then a method of selection decided upon which reveals the qualities required for each job as disclosed by the study. However, this is not the usual procedure; therefore, most manufacturers find their turnover of salesmen high because of improper selection of salesmen. Sometimes the salesman does not make good because he finds the type of selling beyond his experience, or because he is a floater who never expects to do more than draw salary for a few weeks, or as long as he can hold the job, or because one of the brilliant, creative types of individuals has been selected for a plugger's job.

It is not unusual among manufacturers in a variety of lines to find a turnover among the salesmen of 80 per cent annually in individual cases, while for an industry as a whole the turnover has run as high as 40 per cent. The cost of hiring, training, and firing in such a case is large enough to add materially to the cost of selling. Such costs add nothing to the value of the product and cut down profits. Selection by "hunch" and improper training are the two most important factors in keeping up such costs. The substitution of tests for "hunch" and of proper training for no training should help materially in reducing turnover and at the same time secure better sales results.

Recruits for the sales force are to be found in: (1) The concerns in these industries. Office boys and others might well be selected, with training and eventual advancement to the sales force in mind. Some of the stock or shipping clerks who give promise of fitting into selling might be observed and given opportunity to sell at the right time. (2) Clerks in drug stores might occasionally be selected on the recommendation of successful salesmen who have observed them. (3) Graduates of schools of pharmacy of liberal arts colleges who have specialized in chemistry and schools of business who have specialized in salesmanship and (4) Casual applicants who have worked in these fields or who believe they could be successful in them. These latter should not be dismissed forthwith, but should receive careful consideration, since, at times, such applicants given proper training may become very successful salesmen.

ALLOCATION OF SALESMEN'S TERRITORIES

In arriving at the size of the territories to be allocated to salesmen, manufacturers should consider the available transportation, topographical difficulties, and the frequency with which calls should be made.

NUMBER OF CALLS A DAY BY SALESMEN: A salesman working a city makes, as a rule, about 20 calls a day. This does not mean, however, that he will be able to tell his story to 20 dealers. The usual percentage of outs is between 20 and 25 per cent so he will find only 15 or 16 dealers in when he calls. He can, therefore, expect to deliver at most only 15 or 16 sales talks. Very often, the dealer, thinking of a partially prepared prescription in the back room or some other problem, may not even take the trouble to give the salesman the time he needs. Because of rebuffs, lack of interest, and busy stores, the complete sales story cannot be delivered to more than possibly 12 prospective accounts a day. The manufacturer, therefore, should realize that a 100 per cent job on the part of the salesman may be 50 per cent of his calls, or putting it another way, the salesman should call on roughly twice as many dealers as the number to whom he expects to tell his sales story.

It has been found from practice that where the salesman makes calls, he is likely to get a larger order than if the dealer is left to his own devices about ordering, and the more calls he makes the more orders he is likely to get; in fact he is likely to get orders greater than the proportion of extra calls. In these cases, unless special deals are being offered by wholesalers' men, deal-size orders are not likely to materialize.

In the planning of sales operation, therefore, the ratio and timing of the repeat call is quite important, to obtain the greatest efficiency from each call made. Remember, too, the net number of effective calls that can be made in a

week and compare this figure with the cost of keeping a man in the field. This will give you an average cost per visit of between 75c to $1.25. If the sales possibilities of any dealer do not warrant the cost, he might as well be left out of the salesman's visiting book.

If the trade must be visited every 90 days and only twelve sales talks can be given in one day then a territory should not exceed 750 dealers (stores). This will have to be reduced when the salesman spends considerable time in travel. When a salesman covers the same territory for a period of time, he becomes familiar with the dealers' habits. He should make careful record of these habits. For instance, the time of the day that every dealer is in the store should be known to the salesman in the territory. Some owners open the store in the morning but are not there in the afternoon. Others are in only in the afternoon. Some may take Thursday off; some another day of the week. The salesman's knowledge of such habits of dealers helps him to cut down on the number of wasted calls.

MINOR AND MAJOR SALESMEN: Some firms selling many lines have special territorial arrangements. Firms with major products will permit a salesman to have an exclusive territory for such a product only. The minor products are delegated to different men operating in the same territory. Some firms employ junior salesmen for special detail or missionary work, under the control of the regular salesman in a specific territory, counting this as part of the training process. Other firms give the best territories or customers to the senior salesmen and the poorest to junior salesmen. In some cases the sales manager regularly calls on the wholesalers and other important or so-called "house accounts"—drug firms and chains of that kind; these are not then handled by salesmen, or other selling organizations, but only by executives from the home office.

OTHER METHODS OF SELLING: It is not always necessary for the manufacturer to build or to depend entirely on his own sales force. The sales agent can very often take care of a manufacturer's selling for him, sometimes very efficiently, and where he can be used, the cost of selling is usually low.

MANUFACTURER'S SALES AGENCY: The sales agency is, as a rule, an independent sales organization headed by a former drug product salesman who employs three, four or more men who together take care of and handle the sales of from three to ten or more non-conflicting lines in a particular territory. The sales agent is paid a commission ranging from 10 to 20 per cent of the total net sales arising in his territory. The sales agent is sometimes permitted a drawing account to help defray advances to his men before commissions are paid. There is some advantage to the manufacturer in employing a sales agent. First, he does not have to build a sales force for the territories covered by the sales agency. The sales agency assumes this responsibility and offers to the manufacturer a tried and tested group of sales people. The manufacturer receives, in this way, reasonably good coverage of a terriotry in a short period of time.

Second, the sales agent, because he is handling four or five established lines in the territory, very frequently gets easier acceptance from the retailer on a new and additional line than a salesman who comes with a single proposition or who goes to a dealer who does not know the salesman very well, or who has little or no knowledge of the manufacturer.

Working through a sales agency, however, has its disadvantages. The sales agent must distribute time, thoughts, and energies over several lines. Frequently, he favors the line of least resistance. He will push for sales on those products that appear to him to be the easiest to sell, and these may not be the most profitable items for the producer. Furthermore the sales agent often makes promises that cannot be fulfilled and therefore, gets a manufacturer into trouble.

The question of using a sales agent can be settled only by discovering the cost of each method which can be used, and using a sales agent if he is less costly than other methods. Much of our experience with the sales agencies indicates that they are best utilized in those territories where customers are widely scattered because of sparse population. In such cases the cost is no greater than the commission paid on the business secured. The sales agency, however, can be used also in large centers, especially when the agency is headed by an individual who is successful in selling and who gives very close personal attention to the work of his employees. One of the best sales organizations, through which the Crystal Corp., makers of Z.B.T. baby powder and Outdoor Girl face powder, did business, was a small agency in a large eastern city. This despite the fact that in most territories, individual salesmen were employed. For a period of years, this organization showed a consistent sales increase in a difficult territory and with a difficult line. They had a high turnover in men, but the head of the organization himself kept active contact with wholesalers and the larger retail accounts and so offset, in a measure, the turnover.

Experience suggests that the best results will ordinarily be obtained from a manufacturer's own sales force when the members thereof have been carefully selected and properly trained, but in cases where a wide territory must be covered and the line consists of few numbers, and the unit sale is small, a sales agency arrangement is the cheapest way of reaching the market. Sales agencies usually give quicker and more frequent coverage and their constant repeat calls are more beneficial than the infrequent calls of a manufacturer who has his own salesman, and who cannot afford to make calls more frequently than once in 60 days. This is particularly true of a new single specialty, on which there may be considerable initial resistance. The sales agent who calls at least once every 30 days, and sometimes more often, gives the manufacturer the opportunity of more rapid distribution, after advertising has started, than would the manufacturer's own salesmen.

SELECTION OF SALES AGENTS: The names of reputable sales agencies can be obtained through friends or trade publications. The character and ability of the prospective sales agent should be investigated and the number and character of the lines he already represents. Select an agent with few lines, which require a great deal of promotional work. It is our recommendation that ordinarily no sales agent be employed who carries more than five or six lines, and no more than two of these at a time should be new lines. A manufacturer cannot possibly be sure that the sales agency will give the intensive coverage and selling effort that are required, if the sales agent is compelled

to put on more than two drives at a time. Many dealers object to giving one man too much of their time or business; consequently if the agent carries too many lines the dealer, after he has bought from two or three lines, may withhold orders on the rest to give them to the salesman of some other concern.

The manufacturer must keep in contact with all his sales representatives, his own sales agents and wholesalers, and should at regular intervals, visit both the sales offices and the men in the field. This can be done efficaciously by regularly visiting the branch offices, and sales agencies, holding meetings with their men, and going around to customers with some of the salesmen. If the manufacturer has a sales manager, then he should have his sales manager work in the field with as many of the representatives as possible, assisting them in making sales and keeping in close touch with them as well as the wholesalers' men. Ordinarily sales managers should spend considerably more time in the field than at their desks.

Frequently, sales agents will work with wholesalers' salesmen to make the latter more effective, although this type of service is usually regarded as part of the work of the individual salesman of the manufacturers, as is indicated below. Sometimes sales agencies have difficulty getting wholesalers' cooperation. In those cases special formulas may be worked out to do the job, as the offer of some kind of premium for the cooperation asked.

WHOLESALER'S SELLING COOPERATION: Most manufacturers find it possible to secure wholesaler's cooperation to a greater or less degree. Some wholesalers, when they are paid for special effort, will give it with satisfactory results. However, despite this fact, and despite the fact that wholesaler's salesmen are anxious for any extra compensation they can get, manufacturers will find it advisable to have sales representatives of their own in the field, especially if calling on druggists only. Many manufacturers make it a part of their representative's activities not only to see and talk with the wholesalers' men at meetings but also to work with the individual men for a period of time in the field. This is particularly true in those cases where some new or special deal is agreed upon. In this way, on account of the personal contact, wholesalers' men are made more conscious of the drives of the manufacturer and are likely to give the product special consideration and effort, at least for a short time after the contract with a member of the manufacturer's organization.

Some manufacturers confine their entire selling effort to the wholesaler. In some cases this has resulted in the desired distribution. However, before adopting this channel, investigation should be made to discover the possibility of obtaining the needed distribution. Also, the manufacturer must be very careful to determine to what degree the wholesaler is tied up with any similar competitive product. If there are competitive numbers in the wholesaler's line that he favors for any reason, the manufacturer is not likely to get all of the benefits that he may expect from the wholesaler's effort; and he may be left in a precarious position, if for any reason a wholesaler no longer promotes his product to the trade.

SALES EQUIPMENT

Salesmen should be equipped with good-looking and complete sample lines packed in good-looking cases. The samples should always be fresh in appearance. In addition to the samples the equipment should include an advertising portfolio containing samples of all the advertising the manufacturer proposes to do, and an order book with a good-looking cover. The salesman should have complete information about the product and daily reports of prices of competitive products and market conditions. A salesmen cannot get very far when interviewing a prospective customer if he does not have adequate material with which to work.

SALESMEN'S PORTFOLIOS: Salesmen's portfolios assume various forms. They may be elaborate; they may be modest; they may be meager; they may contain full information of the advertising campaign prepared in a manner to attract attention or they may merely be reproductions or facsimiles of some of the advertising about to be released. They may be handmade of fine leather for a small sales force. They may be of strong paper or cardboard, printed or lithographed, if many men must be equipped. Where active wholesalers' cooperation is expected, special portfolios, sufficient to give complete illustrations of the work being done to promote the product can be purchased for from twenty to thirty cents each, in reasonable quantities. If adequate sales cooperation is secured from the wholesalers, as high as two or three thousand of these will be required, because complete wholesale coverage will mean that many individual sales representatives will be working to sell the product.

The contents of a sales portfolio, if there are not many salesmen, may be prepared by hand in the establishment. It should contain photographs of display material, copies of advertisements, complete detailed price lists, sales promotional literature, and all the other information that the dealer would be interested in. It should also contain covers of the magazines in which advertising is appearing. It should be so constructed as to attract attention and to create in the mind of the retailer confidence in the firm whose merchandise is being offered for sale. Usually sales promotional material is prepared by the advertising agency, and is well worth the expense, if salesmen can be impressed with the necessity of using it, and checked constantly to be sure that they are using it. The proper use of the portfolio should, of course, be covered in the sales training course.

WHOLESALERS' PRICE BOOKS: Most wholesalers supply their salesmen with complete price books. The manufacturer should try to get from wholesalers consent to supply price sheets to be inserted in the salesmen's price binders. The size of these binders have been standardized so that the sheets are uniform in construction and shape. Information of the size and other details as to the best manner of presenting price lists are obtainable from any of the service wholesalers or the National Wholesale Druggists' Association.

Usually the wholesaler will want enough price lists for each of his men; the price lists themselves can be valuable and effective in proportion to the completeness of the information regarding the product that is being sold. Price lists should always be available for the retailer, as it very frequently happens that the retailer may not be interested at the time of the sales representative's call but he may, at some subsequent time, desire to buy, and a price list left

with him may lead him to buy your product; certainly, it will make it easier for him if he wishes to buy and this helps in building good will.

SALESMEN'S COMPENSATION

Salesmen are usually compensated on a commission basis, salary and bonus, or straight salary. Few of those on a commission basis work without some sort of drawing account, consequently it is the general practice to set up a drawing account sufficient to pay expenses, to be applied against commissions. Many firms pay expenses as well as car allowances. Others advance the salesman sufficient drawing account for normal expenses such as traveling, hotels, meals, and so on, with monthly settlements. The method of compensation depends entirely on the individual choice but most firms estimate a selling cost exclusive of advertising of between 10 to 15 per cent.

Commissions vary with each line and with each manufacturer. The higher the price of the merchandise, the more exclusive the product, the slower the turnover, the higher the rate of commission. For example, products like toiletries pay as high as 20 per cent, proprietaries 12½ to 15 per cent, and advertised specialties as low as 5 per cent.

In order to build up an efficient organization, many experiments will have to be made. It is quite possible that it will take at least six months to a year, especially in the case of a new line, before a manufacturer finds his salesmen paying their own way, even on a liberal commission allowance for selling.

Most drug products pay a commission of between 15 per cent to 25 per cent to field salesmen, out of which the men pay their own traveling expenses. In cities, where the traveling expenses are low, and where outlets are concentrated, commissions paid may be less than 15 per cent. The lower rate should, however, be in proportion to the possibilities of the territory being covered, and a possible profitable territory given to each man.

Specialties, fixtures, and products of slow turnover such as holiday merchandise pay the highest selling commission. The smaller the item and the quicker the turnover of product, the lower the commission rate. The easier it is to sell the item and obtain repeat orders, the smaller the commission. (In the aggregate, however, the commission usually equalizes itself in terms of earnings of salesmen.) The more difficult the product is to sell, the larger the commission arrangement. These usual practices should be tested through cost studies and comparisons with rates paid by competitors before being put into final operation as the policy of the business.

The manufacturer, however, must bear in mind from the very beginning that no matter what figure he may theoretically set to cover sales expense, turnover of men will increase so that selling costs at first will generally be higher than they will be after the product is established. Marketing in large urban selling areas helps to keep down losses due to turnover because the worth of an individual whose sole expense is carfare in his home town can be more quickly determined than that of a man who is out on the road, many miles away from his home city or the manufacturer's headquarters.

There is only one sound way to figure selling costs. After the normal budgetry figure has been determined, set aside an amount for development cost for each territory tackled and figure this as an independent cost of opening up each market. This will eliminate over-optimism and forestall any disappointment if men fall down on their jobs.

SALES CONTESTS: Sales contests, if effectively handled, usually educate and stimulate salesmen and help to secure better results; the competitive spirit is introduced quite effectively. They may be run for the house salesmen, for wholesaler's salesmen, or for representatives of sales agents.

The basis of awarding prizes may be the number of deals sold, a fixed quota with a bonus for exceeding quotas, or relative standing in a particular drive. It is a good plan in a sales contest, however, to make the prizes obtainable by as many of the contestants as possible. One manufacturer found it advantageous to offer to each representative who sold ten of his deals a prize suitable for the ladies. In this way, every man knew that he had a good chance of getting a prize and was not discouraged if his territory was not strong enough to yield a very large volume of sales; he could count on at least ten deals and by offering as prizes items of interest to the ladies they enlisted the aid of the salesmen's wives to prod their husbands to a little more effort. A very effective form of contest in the drug field could be arranged by scoring salesmen by points for each activity he performs in connection with sales. By evaluating each job in terms of points by reference to the task requiring the least effort a satisfactory system could be worked out and sales activities, under the stimulus of the contest, would be performed that otherwise would probably have secured only passing and ineffective attention. Points could be given for each order over the usual number; for each dollar of unit sales increase; for each new account; for each dead account reopened; for selling larger-profit items; for selling special items of line; for holding down sales expense; for holding down credit losses; for exceeding general quota; for trimming windows and setting up floor displays; and for educating retailers' clerks. Another important factor is the promotion of the contest. Almost any book on sales management will give detailed instructions on this.[1]

There are some dangers and drawbacks to sales contests that should be noted. Salesmen in their enthusiasm to win may oversell an account; they may sell what is not wanted; the orders they induce a dealer to place may carry him for a long time and then there is a later disappointing letdown of sales. Contests are not effective unless they lead to sales that would not otherwise have been made. In the average situation there is room for such selling. Prizes suitable for this purpose are obtainable in many general merchandise fields. Sometimes the prizes take the form of cash, trips, house or personal furnishings. In any case, the prizes should be the kind that is desired by the sales force.

In addition to the sales contest, very often salesmen are compensated in the form of a bonus on a quota basis. The quota is usually set for him and he gets additional compensation as he sells various percentages beyond his minimum quota, or where the quota is fixed at a high point then the bonus is paid for varying percentages of the quota. Generally, it is best not to set a quota so high that it cannot be hurdled; otherwise there would be too much danger of discouragement.

THE ADVERTISING DEPARTMENT: This division of the marketing department might consist of one advertising

expert and his secretary who serves as the liaison executive between the company and the advertising agency or it might consist of an advertising department that handles all of the advertising of the concern. In the first case, the advertising executive will arrive at the concern's advertising policies in conjunction with the executive in charge of all marketing and the advertising agency. After policies have been decided upon he will then maintain continuous contact with the agency checking on the execution of the policies and the results of the advertising. The concern's advertising executive should not only be an expert in advertising but he should know the industry, its products and its problems so that he can present policies which might contain the solutions to the concern's advertising problems.

In the second case, the advertising executive will be charged with the responsibility of setting up an organization that will successfully carry on the complete advertising job of the concern after policies have been decided upon and the instructions have been given as to the job to be done by the overall marketing executive. Such a department will consist of the advertising executive, an assistant executive, a copy chief and copywriters, an art director, a space buyer, a bookkeeper and necessary assistants to any one or all of these.

The job of such a department is indicated in Chapter 14, entitled "Advertising Drug Store Products." It is enough here merely to suggest that the greatest of care should be used in the selection of the advertising executive and he should be given the most competent of assistants. The drug and cosmetic industries spend more for advertising in proportion to sales than any others. This places a great responsibility on the managements to secure the most for the dollars spent. The highest order of efficiency should prevail and the first step is to engage a competent executive.

SALES FORMATION DEPARTMENT: This, in our view of the marketing division of a concern, is the unit that comprises the staff organization of the marketing department. Here, under a competent manager, should be found the following units: sales selecting and training; sales planning; marketing research; and market accounting.

Marketing research procedure is covered in Chapter 19, entitled "Necessity for Market Research." This unit should develop a forecast of sales and indicate the obstacles to sales in respective territories. The sales planning experts would then work out just what needs to be done to secure the sales potentials. This would involve the unit in the consideration of all merchandising activities. They would study everything that might expedite sales. The kind of "mass" or "barrage" advertising that would appear to be most effective and how all the other types of attention-calling devices can be fitted in with the overall marketing plans. These devices consist of point of purchasing advertising, consumer contests, the use of premiums and gifts such as calendars, desk pads, pencils and a thousand and one other such items. This unit might also advise as to the sales tools or equipment to be used such as samples and other materials for objective sales presentation, demonstration materials, sales manuals, advertising portfolios, catalogs, order and report forms and how the equipment should be used to make or in making sales. Detailed treatment as to much of the above will be found in Chapters 10 through 13, 15 and 21.

The Marketing Accounting Unit is still a comparatively new concept for most business concerns. This unit has the responsibility of computing the costs of sales by dealer, salesman, territory, product and size. It would then report its findings, indicating particularly the profitableness of sales made under the varying conditions. These findings would then become the grist for the policy-makers as to products to sell, where to sell them and who to sell them to. The findings could be used to note conformance to the Robinson-Patman Act and they could also be used as evidence in any hearings that might arise before the Federal Trade Commission.

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[1] See *Sales Manager's Handbook*, J. S. Aspley, Ed. (Dartnell Corp., Chicago, 1946).

CHAPTER 10

Introductory and Combination Sales to Dealer and Consumer

Producers resort to what are called "free deals" and combination offers to dealers to make larger unit sales to dealers or run a special for a limited time that should yield the dealer a larger profit. The "free deal" may be described as giving a dealer one package extra on purchase of a dozen, or any similar type, the number being irrelevant. Of course, these "free" goods are not given away free. They must be figured in the cost and somewhere they will appear in the price. If competition uses them as a device to make sales you will probably find it advisable to follow suit, otherwise some dealers may be fooled and you will lose business. This chapter tells you of the different kinds of such deals, how to use them, the pitfalls they present and how to avoid them, and what to do relative to free deals when selling through a wholesaler.[1]

WE have had occasion from time to time to mention free goods deals because of their prevalence in drug product merchandising. In this chapter we propose to discuss this sales device further.

ORIGIN AND MEANING OF FREE GOODS DEAL

Free goods deals were first offered about thirty-five years ago by some manufacturer's clever sales manager who realized that instead of selling a retail druggist a gross of merchandise at $18, if he sold him a gross at $21 and gave him two dozen free, the net result was an increase in sales volume of 12½ per cent with no consequent increase in selling cost. The word "free" was the bait that attracted the retailer, although as a matter of fact there never was a free goods deal of the kind where anything offered was really free. A *free goods deal* can be adequately described as a disguised reduction in price to the dealer, in order to increase the size of his unit of purchase.

A "free" goods deal to the dealer is not to be confused with the combination offer or premium sale to the public, which is fully described in Chapter 13. The free goods deal is a disguised price cut to the dealer; the combination sale, a disguised price cut to the consumer. And the reactions in the trade are entirely dissimilar.

TYPES OF DEALS

Free goods deals may be divided generally into these classes as follows:

1. Introductory deal: This form of offer is used when a manufacturer is marketing a single product or has only one leading product. A free goods deal consists of the giving away of 1, 2, or 3 extra pieces of the product with a dozen purchase.

2. Free deal combination: Many manufacturers who have a popular product on the market find it possible to introduce a new product by offering free goods of the new product with a minimum purchase of the old one. This type of deal is usually effective as the dealer already has a steady demand for the old product and looks upon the offer of the new product as a real concession.

3. Quantity deal: This form of deal is not always worked on a free goods basis. Sometimes for a minimum purchase, manufacturers who sell direct will give a trade discount. Manufacturers who have a number of products may give free pieces of one product for the purchase of 3 or 4 of the others. Sometimes both free goods and discounts are given on minimum quantity purchases.

THE USE OF FREE GOODS COMBINATION SALE TO INTRODUCE NEW PRODUCTS TO DEALER: Generally the manufacturer is very anxious, when he introduces a new product, to secure quick distribution of it. The simplest way for him to get this distribution is to tie up the introductory sales of the new product with the sale of some product already successfully launched that the dealer is eager or willing to purchase. This is done either by offering the new product as a bonus when the old product is purchased in specific quantities or by offering a larger discount on a combination purchase of both the established and the new product than on the old product alone.

Often, when combination sales to the dealer are made comprising several items, the manufacturer includes in the group those items for which there is generally little demand, as he feels that if he stocks up the dealer, he will get sales push from dealer and clerks and thus build up volume.

Very frequently, a manufacturer will include a new product in the standard shipping unit of his old product, as Smith Brothers did when they introduced their Mentholated Cough Drop along with their original Licorice Cough Drop. The manufacturer uses the combination sale primarily as a means of distributing his merchandise in the field quickly so as to be assured of adequate stocks in dealers' hands when advertising starts. However, the attendant results are not always to his liking.

[1] We have used in this chapter the term "free deal." We point out, however, that there really is no such thing as a *free* deal in this field. The Federal Trade Commission has been cognizant of this for some time and the commission is trying to have this term eliminated. The trade is meeting the commission in this matter by changing the term "free deal" to introductory offer or some other similar name.

(*Chapter 10 continues in the subsequent issue.*)